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**Neolithic passage tomb art around the Irish Sea
Iconography and spatial organisation**

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Acknowledgements

Part one – Framework of the study

Part two – The iconographic repertoire of passage tomb art

Introduction

« To seek the law of the signs, it is to discover things which are similar ». This quotation of M. Foucault (1966: 44), extracted from its initial context, summarizes well the original reasoning of the present research work. The « signs » in question here are those which decorate the walls of the Neolithic passage tombs located around the Irish Sea and their « law » is that which organizes their layout in space. The identification of this law occupied the main part of our research which is based on « things which are similar », i.e. on the analysis of the recurrences observed in the layout of the carved decorations.

The passage tombs of the British Isles form part of a group of monuments built during the fourth millenium in the Western part of Europe (Briard 1995). These funerary architectures are intended to contain the remains of a restricted number of people, whose dominating role within the social group seems obvious. From Iberia to Scotland, this type of monument consists of a circular tumulus containing a central chamber and an access passage whose walls, made with large stones, are used as support of a carved art.

Around the Irish Sea, this carved art is composed exclusively of geometrical figures, which distinguishes it from the Breton and Iberian repertoires mainly composed of naturalist representations (objects, human beings, animals).

Various theses were made on this parietal art. E. Shee Twohig devoted her academic works to the recording and the analysis of the carvings located outside the Boyne valley (Shee 1968, 1973b) whereas M. O'Sullivan was interested in the parietal art of Knowth necropolis (O'Sullivan 1981a, 1988). Our own work is distinguished from this preceding research by the extent of its corpus, including all the carvings of the region, formerly known or recently discovered, and by the new orientation of its questions.

Our research concentrates on the signs and their layout in space. The structure of this memory presents the results of this research following a logic of increasing scales, begining with the individual signs and ending with the study of their deployment in the tomb space (figure 0.1).

This memory is divided into eight chapters, gathered in three main parts. Part one, entitled « framework of the study », includes the first two chapters whose goal is to define the object and the subject of our research, to present its methodology and finally to draw up the history of the research previously undertaken on the same topic.

Part two aims to make an inventory of the various graphic forms which make the iconographic repertoire of passage tomb art. This repertoire consists of elementary figures (chapter 3) and of complex figures (chapter 4) whose basic forms and variations will be examined successively. We understand here by « iconography » a study aiming to make an inventory and classify graphic representations; then there will be no analyses on the origin and significance of these representations.

Part three, entitled « parietal art and architectural space », form the main part of our research. Devoted to the study of the spatial organization of the signs, this part lists and analyzes recurring relations existing, on the one hand, between the carvings and the monoliths (chapter 5) and, on the other hand, between the carvings and the architecture of the tombs (chapter 6). The results of these two chapters are then put in perspective in a study devoted to the architectural structures and funerary deposits whose spatial organization reflects that of the carved signs (chapter 7). Lastly, the study of the relations between art and space are completed by an analysis of the « hidden art », i.e. the carvings located on the surfaces obscured in the architecture of the monuments. The study will stress in particular the question of carved stones reuse, a phenomenon little studied in Ireland and whose development explains the origin of a certain number of hidden carvings (chapter 8).

Part one
Framework of the study

Chapter 1
Object, subject and methodology

Like any research work, the present study questions a precise object using an particular methodology built according to a defined subject. The objective of this first chapter is to define these three elements which will be articulated throughout this dissertation. We will start by describing the object of the study, the carved passage tombs around the Irish Sea, by specifying the contents and the limits of the selected corpus. Then the subject will be exposed, from the initial questions to the problematics of the research. Lastly, the means of the research will be detailed, from the tools for investigation to the tools of representation, by justifying the various methodological choices.

1.1. Definition of the object of study and presentation of the corpus

The study that we propose is on an object and its context. The central object is a set of carved signs which we call parietal art. The context of this object is a type of funerary architecture built around the Irish Sea during the Neolithic: the passage tomb. The relations between the object and its context form one of the main questions of this thesis research. In this chapter are defined and specified the object of the study as well as its architectural context. The vocabulary used to deal with a subject being fundamental, we will start by bringing some preliminary terminological points. Then we will describe the architecture of the Irish passage tombs. Lastly, we will present the corpus of the sites with carvings which constitute the studied object.

1.1.1. Terminological remarks

This first point is not a lexicon, which would define all the terms used in the study, but a set of remarks on the use of certain terms. Indeed, various terms generally used in the specialized literature appeared inadequate or insufficient and were replaced by others, considered to be righter. We wish here to justify these terminological choices by successively defining each one of these words of which the majority are in the heart of the subject.

1.1.1.1. *Megalithism and monumentality*

The architectures that we study are characterized more by their monumentality than by their technique of construction (megalithism), also we prefer the first term to the second. The use of large stones is certainly an undeniable characteristic, but it concerns only the chamber and the edge of the tumulus, i.e. a tiny proportion of the architecture made up in its greater part by a tumulus or a

cairn. Moreover, the term « megalithic » is sometimes inappropriate since the walls of certain passage tombs in Ireland (Carnanmore, Slieve Gullion South) or in Orkney are elaborated in dry stone walling (Barber 1992). I. Kinnes underlines this problem of terminology by comparing the monuments of Cairnholy and Wayland's Smithy, two identical architectures but typologically dissociated since the first is built from large stones whereas the second is built with wooden posts and low dry stones walls (Kinnes 1981: 84).

Whatever the technique used, the aims of the Neolithic builders were before all the monumentality, the ostentation and the perenniality of the tomb. Thus these monuments must be qualified according to their intention rather than according to the means used to build them. The term « megalithic » will thus be employed only to refer to a technique of construction and not to indicate the essence of the monuments.

1.1.1.2. Parietal art

The signs carved and painted on the walls of Neolithic tombs of Western Europe are generally termed « megalithic art ». Without entering into the various problems raised by the first element of the expression (can one speak about art?), it seems righter to replace the adjective « megalithic » by « parietal ». Besides the reasons explained above (all the monuments are not megalithic), the principal characteristic of these carvings is their location in a built space. It is then better to define them according to their support rather than according to the technique of construction of their support. In the Paris basin, gallery graves and hypogea present the same iconographic repertoire and the same distribution in funerary space: it is thus the same parietal art, laid out on surfaces built in two different techniques. In Irish and British literature, certain terminological alternatives has been previously proposed: « mural art » (Powell & Daniel 1956: 41; O'Kelly 1970), « passage grave art » (Shee 1968) or « passage tomb art » (O'Sullivan 1988).

1.1.1.3. Tomb

The tombs which we study first have the function to receive hulan remains. However, it is important to define these monuments beyond this functional aspect. Other elements (cultural, social, etc.) must be taken into account in the comprehension, and then in the definition of these monuments. « When a group works out one funerary structure and not another one, it is for it a way to mark its cultural identity and to express the single way in which it intends to deal with the problems raised by the presence of death. This is this aspect that we must seek to see[1] » (Leclerc 1997: 404). The motivations at the origin of the construction of the passage tombs are primarily of symbolic order: « The architecture is not a simple receptacle, it also show a intellectual relation built with space, the body and death, and its plan that we have to decipher probably holds a part of this symbolic thinking[2] » (Boujot 2001: 24).

The term « tomb » was preserved for convenience, but, without being incorrect, it is thus

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[1] « Quand un groupe élabore une structure funéraire et non une autre, c'est pour lui une façon de marquer son identité culturelle, et d'exprimer la manière unique dont il entend prendre en charge les problèmes que pose la présence de la mort. C'est cela que nous devons chercher à y voir ».

[2] « L'architecture n'est pas un simple réceptacle, elle parle aussi d'un rapport intellectuel construit à l'espace, au corps et à la mort, et le plan qu'elle nous donne à déchiffrer détient probablement une part de cette pensée symbolique ».

certainly insufficient to define these funerary architectures because it does not imply necessarily a symbolic dimension.

1.1.1.4. Necropolis

One of the characteristics of the passage tombs of Ireland is their frequent regrouping into organized units. During this work, these groups of monuments will be termed « necropolises » (Wilde 1847: 161), a word considered to be more suitable than the more commonly used term « cemeteries » (Cooney 1990). Indeed, the first expression indicates an important grouping of monumental burials structures whereas the second indicates simply a ground in which the dead are buried.

1.1.1.5. Tumulus, cairn and mound

The monumental structure built around and above the passage tombs varies in its composition and is indicated by various terms depending on the materials employed. A tumulus is a mixture of stones and earth. A cairn is a mass of stones only whereas a mound is composed exclusively of earth.

1.1.1.6. Menhir, standing stone and stele

Isolated standing stones is not a great matter of our study. However, to refer to this object, we prefer the terms « standing stones » or « stele » rather than « menhir » (Cassen & Vaquero Lastres 2003a). The latter indeed means « long stone » in Breton and is insufficient whereas the term « standing stones » indicates the vertical position, the very essence of the object. The term « stele » is also appropriate but its interpretative character can however be a problem: indeed, a stele suggests a function of memory in the honor of a person or an event.

1.1.1.7. Sign and motif

The graphic units composing parietal art are often termed « motifs ». However, the meaning of this word is ambiguous since it can indicate a graphic element as well as a set of graphic elements (ex: the ornamental motif of a curtain or a tablecloth), or the dominant topic of a representation. The term « sign » is preferable for two reasons. Firstly, a sign indicates a graphic unit and not a combination of elements. We will thus refer, by « sign », to an elementary graphic unit and, by « reason », a group of several signs directly associated in space in order to form a clearly defined unit. Secondly, the term « sign » indicates better the supposed function of the object since these recurring froms are regarded here as *signifiers* carrying an unknown *signified* (Robert 2007: 471). The term « motif » is more neutral and its function can be simply ornamental.

1.1.2. Passage tomb architecture around the Irish Sea

The carved passage tombs around the Irish Sea form a specific group of monuments inside a unit which will be specified (map 1.1). Indeed, if only this category of tombs presents parietal carvings, it does not constitute the single form of monumental funerary architecture in the region. Other tombs, made of a chamber under a tumulus, take part of the same great unit. Before concentrating on the particular type of architecture which will be dealt with throughout this dissertation, we propose

a very short panorama of these various Neolithic monumental tombs distributed in the British Isles (Scarre 2005).

We exclude from this great unit the unchambered long barrows, distributed in the Eastern part of Great Britain (Kinnes 1992), which form a separate group whose architecture and geographical distribution are opposed to the collective burials of the region. Moreover, several families of small simple monuments forming a separate category can be briefly cited: the « portal tombs », distributed throughout Ireland and in the west of Wales and Cornwall (Ó Nualláin 1983), and the « wedge tombs », distributed in northern and western Ireland and generally dated in the Bronze Age (Ap Simon 1987; O'Brien 1993 ; Brindley & Lanting 1992).

Besides these three groups, a great series of British monuments present one or more complex tombs with an access passage. In this great unit, various typological families were established according to three criteria: the form of the cairn or tumulus, the plan of the chamber and the geographical distribution of the monuments. Generally, the form of the cairn defines the family and the plan of the tomb the sub-types. The so-called « passage tombs » are characterized by a circular tumulus and a North-East Ireland and North-East Scotland distribution. Various sub-types are determined by the plan of the chamber (rectangular, circular, transeptal, compartmented).

The « court tombs » are concentrated in the north of Ireland. They present the same types of chamber with a passage but are dissociated from passage tombs by a long trapezoidal cairn (De Valera 1960). Court tombs are generally associated to the cairns of the Clyde-Carlingford group, in the south-west of Scotland, and their external and internal architectures present several similarities with the Irish monuments but also have certain proper characteristics such as circular cairns (Scott 1962, 1969).

The Cotswold-Severn group is distributed in south-western England and is characterized by large cairns of trapezoidal form, containing a central tomb or one or more lateral tombs whose plan varies from simple chambers to double transeptal chambers (Corcoran 1969; Darvill 1982).

Lastly, Scotland presents a large typological range of monuments: the Clava type (passage tombs with circular cairn and chamber), the Orkney-Cromarty type (long, circular or « horned » cairn, a passage tomb with polygonal or rectangular chamber, compartmented or with side cells), Hebridean tombs (circular or elongated cairn, a passage tomb with a polygonal chamber) and the Maeshowe type (passage tomb with side cells and circular cairn) (Henshall 1963, 1972).

We do not aim to decline every typologies of tombs presenting a passage in the British Isles but to show that this characteristic is not limited to only the « passage tomb » type. Undoubtedly, a new general typology, established on the whole of the British Isles and based on the architecture of the cairn as well as on the tomb architecture, could solve these problems of terminology. In the current classification, similar monuments are refered to by different names according to their localization. Moreover, the terminology is insufficient: for example, the corridor is neither the exclusive nor a systematic characteristic of the « passage tomb » type. The term « passage tomb » are indicated monuments which, actually, are characterized by other features that we will specify now.

Passage tombs are complex monuments made up of an external architecture (tumulus or cairn) and of an internal architecture (tomb). The external architecture consists of an artificial hill formed of stones (cairn) or of a mixture of stones and earth (tumulus). We will focus, in chapter 7, on the complexity of the tumulary structures. The contour of this hill is circular and is generally delimited by a kerb of large stones. Other types of enclosure can also be used: ditch, embankment, dry stone facing, stele circle. The kerb generally incurves in front of the tomb entrance and sometimes forms a semicircular forecourt.

The internal architecture of the passage tombs is the most complex: it consists of a chamber and a passage whose walls are made primarily of large standing slabs. The passage, in its simplest form, is short and covered by a single slab. In the most complex monuments, the passage is divided into several parts by sillstones, jambstones or lintels. Sometimes, these various spaces of the passage are individualized by the combination of the roofstones in several small successive vaults. It is possible in certain cases, as in Newgrange, to speak about an antechamber between the passage and the main chamber. The latter is generally located at the center of the tumulus and presents a rectangular, octagonal or circular plan. It frequently opens onto side and axial cells. These are built either inside the room, where they are delimited by vertical slabs placed perpendicularly to the lateral walls (compartmented tomb), or outside the room, directly in the tumulary mass where they are built as small chambers with a low roof (transeptal tombs).

The cells are the privileged, but not exclusive, space for the funerary deposits and they often present at their base a widened horizontal stone slab, forming a kind of altar and termed « stone basin » (Herity 1974: 123). The entrance of the cells is frequently delimited on the ground by a sillstone. These cells, or recesses, are sometimes very small and built above the ground level. The roof of the chamber, when the latter is small, is generally made of a simple slab. In complex tombs, a corbelled vault several meters high is often built.

The passage tombs are also characterized by their grouping in necropolises and by a particular location in the natural environment. These monuments are built on hilltops and close to important rivers (Shee Twohig 1990; Cooney 1990; O'Sullivan 2006: 670). Lastly, parietal art is the last characteristic of the passage tombs distributed around the Irish Sea.

1.1.3. <u>Parietal art : definition and corpus of the sites</u>

The parietal art of the passage tombs around the Irish Sea is distinguished from the other funerary representations of Western Europe by a repertoire made exclusively of geometrical signs. Eleven sign families can be identified: cupmarks, circles, spirals, arcs, radiate circular signs, radiate semicircular signs, scalariform signes, chevrons, triangles, lozenges, and meandering signs (see chapter 3). These figures are carved on the large stones used in the architecture of the tomb (orthostats, sillstones, lintels, roofstones) and of the tumulus (kerbstones). Most signs are made with a picked or, more rarely, incised line. Some signs are picked on the whole of their surface (plain picking) whereas others are carved in low-relief, but both last techniques are rare (see section 2.2.1).

The corpus analyzed in this research includes 634 stones distributed in 89 sites (map 1.2).

Most of these sites are passage tombs, but some carved stones, presenting typical passage tomb motifs, were discovered out of their original context (isolated stones), in unidentified structures (destroyed monuments) or more rarely in other types of architectures (stone circles, cists). This corpus wants to be as exhaustive as possible by including all the signs carved in passage tombs as well as the stones carved with similar signs present in other contexts.

We propose here a brief review of the sites constituting the corpus, without description of the carvings which will be largely examined in the dissertation and whose bibliographical sources are indicated. The carved monuments are distributed around the Irish Sea, more precisely on the eastern side of Ireland, on the west coast of Wales and in the North-West of England. Another concentration of carved passage tombs is in Orkney, in the North-East of Scotland, and is also included in the present study.

1.1.3.1. The Irish sites

The most septentrional Irish site is <u>Carnanmore</u> passage tomb, in county Antrim. The monument is located in the north-eastern point of the island, on the summit of Carnanmore mountain, and takes part of a group of cairns and passage tombs (Herity 1974: 219) distributed on the summits surrounding the catchment basin of the Carey and Glenshesk rivers (map 1.3). It consists of a simple rectangular chamber and an unroofed corridor, built of dry stones and surrounded by a circular cairn. Only one roofstone presents typical carved signs of the Irish funerary parietal art. Another roofstone, covered with cupmarks, can also be quoted.

At the end of the XIXth century, the site was mentioned by J. O'Laverty (1878: vol.5, 552) and was the subject of an engraved scene by W. Grey (1884). The first plan of the cairn and tomb was carried out by E. Evans which also gives the first description of the carvings on the top face of one of the chamber roofstones (Evans 1945). The first drawing of the slab was done by E. Shee Twohig (1981). A second record was made for this thesis research during a personal visit on the site in September 2006.

The court tomb of <u>Malin More</u>, also called Cloghanmore, is located at the western point of the Slieve League peninsula in county Donegal. The monument, described by W.F. Wakeman (1890), consists of a trapezoidal cairn presenting a forecourt closed at its broadest end and opening onto two parallel chambers. Each one of these tombs has an orthostat carved with various signs (circles, arcs, lozenges, meandering lines), drawn by E Shee Twohig (1981).

This is the only monument of this type that shows parietal carvings. The setting of both carved stones could date from the late restoration of the monument (Shee Twohig 1981: 235). The style of the signs is similar to the style of the decorative motifs of the Iron Age (Borlase 1897, I: 243; De Valera 1960: 63) and is close for that to the decorated tomb of Clover Hill.

The small tomb of <u>Clover Hill</u> is located in the Cúil Irra peninsula (county Sligo) in which are the passage tomb necropolises of Carrowmore and Knocknarea (Burenhult 1980; Bergh 2002a). The precise nature of the architecture is not defined, particularly because of its bad state of preservation. There remains currently nine orthostats forming an pear-shaped chamber built below the ground

level. No trace of external structure survived. The site was described by W.F. Wakeman (1881: 552), who mentions a capstone and a tumulus, and by W.G. Wood Martin (1888: 92-3).

The carvings of the three orthostats, drawn by E Shee Twohig (1981), are composed of circles, triangles and « crooks ». As in Malin More, the style of the carvings is distinguished from classic passage tomb art and resembles more Iron Age decorative motifs ; thus the contemporaneity of the parietal art and the architecture is generally questioned (Stokes 1883: pl. XXV; Macalister 1921: 227; Collins & Waterman 1955: 42; Shee Twohig 1981: 235). In spite of that, the parietal art of the tombs of Malin More and Clover Hill was integrated into the corpus.

The tomb of Listoghill is the monument 51 of the Carrowmore necropolis. It consists of a simple chamber, without a passage, made of six orthostats, covered by a large roofslab and located in the center of a cairn delimited by a kerb. The monument is distinguished from the other passage tombs of the necropolis by its central location, its monumental dimensions (32 meters diameter) and by certain architectural characteristics absent in the other sites (cairn, large flat capstone, absence of passage, parietal art). The tomb and its cairn were excavated by G. Burenhult at the end of the 1990's (Burenhult 2003: 67-8).

Several archaeologists claimed the discovery of carved losanges without however making any drawing of them (Breuil & Macalister 1921: 5; Mahr 1937: 354-5). The carvings mentioned could never be found after these statements (Shee Twohig 1981: 235) and the presence of parietal art in the site was put to question until the recent excavations during which were discovered circular signs carved on the front side of the capstone (Currán-Mulligan 1994) and on an orthostat of the chamber (Burenhult 1999).

Twenty kilometers south of Carrowmore is the site of Moylough (Co Sligo), a Bronze Age cist excavated in the 1920's by H. Morris (1929: 114-5). The structure does not date from the Neolithic but the capstone, carved with a meandering sign, could be reused. Indeed, this type of motif is quite unusual in the repertoire of Bronze Age cist art in Ireland and Britain (Simpson & Thawley 1972) whereas it is common in Irish passage tomb walls. For this reason, the carved stone and its particular sign, perhaps in re-use, were integrated into the corpus.

The architectural context of the two carved stones discovered in Kiltierney Deerpark (Co Fermanagh) could not be defined with certainty. The monument is a circular tumulus surrounded by a ditch and an embankment. The center of the tumulus was excavated by the landlord in the 1870's and probably contained, at the time, the vestiges of a megalithic structure (Wakeman 1875: 467; 1881: 544-5). Further excavations were undertaken by O. Davies in the middle of the XXth century in the peripheral structures (ditch and bank) and on the outer edge of the tumulus but were not extended to the center of the monument where the archaeologist interpreted the large stones piled up as the vestiges of a funerary chamber (Davies 1946). However, ultimate excavations, carried out to this place in 1969 and 1983-4, did not detect any signs of the tomb which was probably destroyed during the Iron Age when the site was deeply altered (Shee Twohig 1981: 224; Foley 1988).

The known carvings are typical of Irish passage tomb art: arcs, circles, losanges, meandering lines, parallel lines. They appear on two stones extracted from the center of the tumulus at the time

of the first excavations which were unfortunately not reported. The first records and descriptions of the signs were made by W.F. Wakeman (1881: 545-51). O. Davies published a first drawing of the two carved stones (Davies 1946), completed by E. Shee Twohig (1981).

The passage tombs of <u>Knockmany</u> and Sess Kilgreen (Co Tyrone) are set along a line of natural relief separating the catchment basin of the Blackwater, in the south, from a mountainous massif in the north (map 1.4). This limit of relief corresponds to a geological limit since, in the north, the substrate is composed of old red sandstone whereas in the south, it is composed of schistous sedimentary rocks.

The first monument consists of a pear-shaped chamber preceded by a short passage and covered by a tumulus. The cover of the chamber was not preserved. A first plan of Knockmany passage tomb was carried out by G.S. Smith (1841) and the site was described by W.R. Wilde (1846) and W.F. Wakeman (1876). G. Coffey devoted a long article to the site in which he draws up a plan of the monument and analyzes the etymology of its name (Coffey 1898). A.E.P. Collins and D.M. Waterman carried out several excavation campaigns in the chamber and in certain parts of the tumulus which were completed by the restoration of the site (Collins & Waterman 1952; Collins 1960).

Nine orthostats out of twelve carry carvings of circles, arcs, spirals, chevrons, meandering lines and parallel lines. These carvings were partly recognized by several archaeologists who made sketches of them (Smith 1841; Wilde 1846; Wakeman 1876). G. Coffey carried out the first precise drawing of two orthostats (C9 and C11) and proposed an iconographic study on the origin of the signs represented (Coffey 1898). All the carvings were then drawn by E. Shee Twohig (1981) in her great inventory. Lastly, F. Lynch published a drawing of orthostat C11 and proposed to see there two stages of carving (Neolithic and Bronze Age) after the motifs and techniques of the carvings (Lynch 1994).

The neighboring tomb of <u>Sess Kilgreen</u> also presents a pear-shaped plan and a short passage or entrance formed by two orthostats. The cover of the tomb did not survive and the large tumulus under which it was built is very low today. The short description of the excavations by Father J. Rapmund, at the end of the 1890's, was reported by G. Coffey (1911) who left a sketch of the plan of the chamber as well as a drawing of the tomb with its carvings. The latter appear on six tomb orthostats and on a standing stone located 200 meters away from the site of which it could have initially been part (Shee Twohig 1981: 202). The carvings of this stone were precisely drawn by G. Coffey (1911) whereas the parietal art of the whole chamber was recorded by E. Shee Twohig (1981).

The monument of <u>Lyles Hill</u> (Co. Antrim) is an atypical example of funerary architecture, built during the Neolithic and used on to the Bronze Age. An enclosure of contiguous steles forms the kerb of a very low cairn (1 meter high) in the center of which a small circular structure of boulders was arranged. A small kerbstone, surrounded by two jambstones, carries carvings of chevrons and was interpreted as a « false entrance ». The site was excavated by E. Evans who made a drawing of the incised stone (Evans 1953; Gibson & Simpson 1987).

The carved stone of <u>Drumreagh</u> was deposited in Ulster Museum without any indication on the circumstances of its discovery. The object, broken, is undoubtedly incomplete and presents various signs drawn by E. Shee Twohig (1981: 233). Those are typical of the passage tomb repertoire (circles and meandering lines), also is it natural to integrate them into the corpus of the study.

The tomb of <u>Millin Bay</u> (Co. Down) also constitutes an original monument by its architecture as well as by its parietal art. The tomb is a long megalithic cist of 0,8 x 6 meters, built below ground level and surrounded by two concentric stele enclosures of an oval shape. The monument was excavated by A.E.P. Collins and D.M. Waterman who also did a drawing of the carved stones (Collins & Waterman 1955).

Forty steles carry carved signs whose register corresponds to the passage tomb repertoire (meandering lines, circles, arcs, radiate signs, spiral, lozenges, triangles) but whose style is completely original and unique (Shee Twohig 1981: 233-4).

The carved stone of <u>Killin</u> (Co. Louth) represents the last vestige of a monument completely destroyed in 1826. This one was standing on the hill of Killin and consisted of a megalithic chamber covered by a cairn and surrounded by a kerb and a stone circle. The site was described by T. Wright who drew a plan and a view of the monument (Wright 1748, III: 13). H. Morris also quoted an old description of the site bringing various informations on the architecture of the tomb (Morris 1907: 59). Other archaeologists just mention the monument, sometimes as a stone circle (Bell 1816: 238; Lewis 1837; Coffey 1897b; Borlase 1897, I: 309; Davies 1939). E. Evans devoted to the site an article of synthesis and published a rubbing of the carved stone (Evans 1939). The latter was discovered out of the site and was used as an anvil in a smithy. It is probable that other stones of the tomb also carried carvings, as indicates the spiral observed by T. Wright on one of the tomb orthostats or the « feather » figures described by the note quoted by H. Morris.

The passage tomb of <u>Banagher</u> (Co. Cavan) is part of a group of five circular monuments (mounds, stone circle and eart enclosure) aligned on an NO-SE axis. The chamber, completely ruined, is in the center of a cairn delimited by a kerb and surrounded by a stone circle ten meters away from the kerb. The whole site, mentioned in various inventories (Ó Nuallaín 1989: 127; O' Donovan 1995), was prospected and put in plan by E. Cody who also did a rubbing of the carved stone (Cody 2002). The latter is a loose block discovered in the passage of the tomb of which one face is decorated with concentric circles, parallel arcs and parallel lines. Several parallel incisions also appear on one of the orthostats but may be posterior to the passage tomb.

The monumental complex of <u>Loughcrew</u>, or Slieve na Calliagh (Co. Meath), is one of the four large Irish necropolises distributed on a east-west axis running from the Irish Sea to the Atlantic coast: Brugh na Bóinne, Loughcrew, Carrowkeel and Carrowmore (Cooney 1990). The site has 27 passage tombs distributed on a chain of three summits dominating the region: Carnbane West, Carnbane East and Patrickstown Hill (maps 1.6 and 1.7). Less known than the Boyne necropolis, the site nevertheless was the object of an abundant literature which we will not be listed here (see Shee Twohig 1981: 207).

The alphabetical nomenclature of the tombs was defined by E. Conwell who carried out the first and principal excavations on the whole necropolis (Conwell 1864a, 1866, 1868, 1872, 1873). One second excavation campaign was undertaken on some tombs by E.C. Rotheram (1877, 1895, 1897, 1898, 1899; Coffey 1897). The last operation in date was led by J. Raftery in tomb H where the archaeologist discovered furniture dating essentially from the Iron Age (Raftery 1953). For her thesis work, J. McMann drew up new plans of the monuments (McMann 1991, 1993)

The corpus of the carved stones of the necropolis includes 107 elements. Most of them were drawn in a very precise and realistic way by V. Du Noyer during E. Conwell's excavations and published by W. Frazer (1893). Some carved stones were the subject of specific drawings by E.C. Rotherham (1897, 1898, 1899). The whole corpus was recently recorded by E. Shee Twohig (1981). Lastly, a new recording campaign on some stones was carried out in September 2006 for the present thesis.

The first group of passage tombs of Loughcrew necropolis is on the hill of Carnbane West. Among these tombs, six have parietal carvings. Tomb F presents a cruciform chamber with a passage and stands in the center of a cairn surrounded by a kerb. The cover of the chamber has disappeared. Seven orthostats and two loose stones are carved. Tomb H presents a plan of the same type and contains the same number of decorated orthostats. One of the kerbstone is also carved, which is rather rare in Loughcrew.

Tomb I consists of a large chamber compartmented into seven cells, with a passage and inserted into the center of a circular cairn surrounded by a kerb. Seven orthostats and a loose stone have carvings. The chamber of tomb J is mainly destroyed but was certainly compartmented. Carvings are known only on an orthostat and on a loose stone. The same characteristics are found in tomb K in which remain only some stones, including one carved slab in the center of a circular cairn.

These three last tombs are distributed around cairn L, twice as large and containing a large compartmented tomb whose corbelled roof was preserved. The number of carved stones is also more important: 16 orthostats, two corbels and two loose stones.

Monument O, located between the two main hills of the necropolis, completely disappeared and only one carved stone, currently standing on the edge of a fence, has been preserved. This stone presents various traditional signs of passage tomb art and was recorded in September 2006.

The carved passage tombs on the hill of Carnbane East, the highest, located at the center of the necropolis, are distributed around the large central cairn T. The latter contains a cruciform chamber with a corbelled roof and a passage. The parietal signs are distributed on 19 orthostats, two sillstones, eight roofstones and one large kerbstone. This is the most richly decorated monument in the necropolis.

Cairn R2 is considerably damaged and the central chamber has completely disappeared. Only a fragment of a carved stone has been found by E.C. Rotheram. Cairn S, circular and surrounded by a kerb, contains a tomb whose plan is original: the rectangular chamber has a side cell in its inner left angle. A second cell, which has now disappeared, may have existed in the inner right angle (Shee Twohig 1981: 213). Five carved orthostats are known in the chamber and passage.

The compartmented tomb U presents carvings on each wall of the chamber and on the end of the passage (13 orthostats). Tomb V, in a bad state of conservation, consists of a compartmented chamber of which four orthostats carry carvings. Tomb W is distinguished from the other monuments by a simple oval chamber and two entrance pillars such as in Knockmany and Sess Kilfreen passage tombs. Three orthostats of the chamber and one entrance stone are carved.

The eastern hill of the necropolis, Patrickstown Hill, presents three destroyed monuments, of which two contain carvings. Tomb X1 consists of a low cairn surrounded by a kerb and in the center of which is only one richly carved stone. Monument X2 is in the same state of conservation. A kerbstone presents several lines of cupmarks (Shee Twohig 1981: 220).

In the north of Loughcrew hills, in Ballinvally, a stone carved with circles and parallel arcs was discovered re-used in a low fence wall and certainly belonged to the stone circle cut across by the fence. The carvings, similar to passage tomb art, were drawn by M. Brennan who represented spirals (Brennan 1983: 63). Recently, E. Shee Twohig proposed a new record in which the circular figures are identified as concentric circles (Shee Twohig 2001). For S.A. Johnston, the stone could have been taken away from one of the Loughcrew passage tombs where the carvings would have their initial place (Johnston 1991: 682-3).

Two carved monuments continue the east-west axis of the necropolis to the Blackwater river, a tributary of the Boyne (map 1.6). The passage tomb of Kings Mountain is only known through the account of the field owner, collected by E. Conwell (1872: 77). falls It The tomb was destroyed and only one stone carved with spirals has been preserved on the site. This stone was drawn by E. Shee Twohig (1981) and, more recently, by G. Eogan (2000).

Near the hill of Kings Mountain, on the slope going down towards the Blackwater, one of the elements of a stone pair (Clonasillagh 1) carries carvings of circles, parallel scores and two meandering lines drawn by G. Eogan (2000).

Several carved stones found in undefined context have been known of for a long time or were recently discovered between Loughcrew and the Boyne necropolises (map 1.5). All present typical signs of passage tomb repertoire and then were integrated into the corpus. A small stone covered by parallel chevrons was discovered in Cregg and was published by C. Corlett (1996). Another small stone, discovered in Mountainstown and carved with a zigzag sign, was recently reported and drawn by N. O'Broin (2000).

The two boulders carved with simple circles at Rathkenny could belong to a late funerary chamber. The standing slab and the stone resting partly on it were drawn by E. Conwell (1864b) and again by E. Shee Twohig (1981). The carved stele of Mullagharoy presents parallel circles, meandering lines, an radiate sign and cupmarks. It was drawn by M. O'Sullivan (1988) and by G. Eogan (Eogan & O'Broinn 1998).

Lastly, the two carved stones at Ardmulchan owe their discovery to building works which, however, did not leave any information on their original context. These stones, covered by circles, arcs, cupmarks, meandering lines and chevrons, certainly belong to a destroyed passage tomb. G.

Eogan, who intervened on the site at the time of the discovery, made the first drawing of the stones (Eogan 1974b), then reproduced by E. Shee Twohig (1981).

The Boyne necropolis, or Brugh Na Bóinne, resembles Loughcrew complex and consists of three groups of monuments distributed on three contiguous summits aligned on an east-west axis (map 1.8). Each group forms a small necropolis of four to eighteen tombs, with passage and circular cairn, organized around a large central tumulus or cairn. The three sites composing the necropolis of the Boyne are Knowth, Newgrange and Dowth.

The group of <u>Knowth</u>, on the west, is the most important site regarding the number of tombs and of carved stones. The central tumulus, which measures more than 80 meters in diameter, is surrounded by a kerb of 127 large stones and contains two opposite tombs whose entrances are located on the east and west edge of the structure. The eastern tomb presents a 30 meters long passage and a cruciform chamber covered in corbelling. The western tomb has a corridor of the same length which forms an angle a few meters before the entrance of the simple chamber. The roof of the chamber is made with large capstones. This imposing tumulus is surrounded by 18 small satellite tombs whose plan, simple or cruciform, is directed towards the central monument.

Besides the large tumulus, no structures were visible before the recent excavations of the site. These began with a first intervention by R.A.S. Macalister in 1941 (Macalister 1943) then, from 1962, the operations were in charge of G. Eogan whose work required forty years of excavations. The discoveries of the archaeologist were the subject of many publications (Eogan 1963b, 1967, 1968, 1969, 1973, 1974a, 1976, 1984, 1986, 1998) but the final reports on the central monument, the parietal art and the protohistoric and historical settlements are currently in preparation.

Parietal art is present on the main site as well as on the satellite sites. In the former, carvings appear on 91 kerbstones, 93 stones in the eastern tomb and 23 stones in the western tomb. Twelve satellite tombs also present carvings on a total number of 37 stones. To this corpus must be added 27 loose stones or fragments of carved stones discovered out of context during the excavations. The carvings of the main tumulus and of the satellite tombs were drawn by G. Eogan and partly published in several books and papers (Eogan 1968, 1974a, 1977, 1978, 1986, 1990, 1996, 1997a, 1998, 2008). M. O'Sullivan also devoted a master dissertation to the parietal art of the main tumulus and drew the whole carvings of the kerb and of the eastern and western tombs (O'Sullivan 1981a, 1988).

The tombs of <u>Newgrange</u> are in the center of the necropolis and are also organized around a large central tumulus. The latter, of slightly oval shape, measures 80 meters in diameter and its kerb is composed of 97 monumental stones. Contrary to Knowth, only one tomb was discovered in the tumulus. The cruciform chamber is corbelled and is similar to Knowth tomb East.

The three satellite tombs of Newgrange are aligned on a east-west axis. Tomb K (simple chamber with one side cell) and tomb L (cruciform chamber) are in the west of the central tumulus whereas tomb Z (simple chamber with lateral recess in the passage) is on the east. The tomb of the central tumulus, opened at the end of the 18th century, aroused great interest and several descriptions were published before the first excavations (Pownall 1773; Wilde 1847; Coffey 1892, 1912; Macalister

1929; Hartnett 1954; Ó Ríordáin & Daniel 1964). The latter were entrusted to M. O'Kelly from 1963 and lasted about fifteen years (O'Kelly 1964, 1966, 1968, 1969, 1972, 1973, 1982; O'Kelly, Lynch & O'Kelly 1978).

The parietal art of the central tumulus is distributed on 42 kerbstones and 46 stones of the tomb, and was published in the definite volume of the site (O'Kelly 1982). However, ten carved kerbstones, discovered after the excavations during development work on the site, do not appear unfortunately in the published corpus (Shee Twohig 2000: 97; O'Sullivan 2006: 661) and constitute a regrettable lack for the present study. The carvings of the satellite tombs relate to 18 stones and were published in the excavation report (O'Kelly, Lynch & O'Kelly 1978).

The large tumulus of <u>Dowth</u> was built on the highest summit of the necropolis. Of circular form and with a diameter of 85 meters, the monument contains two passage tombs in its western part. The northern tomb, ten meters long, is cruciform and present an « annexe » opening onto the right-hand side cell and made of two small chambers laid out at right angles. The southern tomb consists of a large circular chamber with a single side cell laid out on the right and with a short access passage.

The first excavations on the site were carried out in 1847 by R.H. Frith which excavated a part of the tumulus and discovered the northern tomb (Herity 1974: 248-50; Harbison 2007). The southern chamber was discovered during a second campaign conducted by T. Deane (1887). The plan and section of the tumulus and the tombs were made by the O'Kelly's in 1969 (O'Kelly & O'Kelly 1983).

Both tombs present carvings on twenty orthostats and four roofstones. The tumulus is surrounded by a kerb whose 15 stones are carved. This is a minimum number because the northern half of the kerb has never been excavated; thus, a great part of the external parietal art of the monument is certainly still hidden. The known carvings of the kerb were partly drawn by H.G. Leask (1933) but the whole internal and external corpus was drawn and published by M. and C. O'Kelly (1983).

The large tumulus of Dowth is not surrounded by small satellite tombs as in Knowth and Newgrange. However, three passage tombs are on the hill near the monument and seem to take part of the same topographic unit. Tomb F, today destroyed, gave a carved stone (Leask 1933: 166; O'Kelly 1967: 45-6). Tombs I and J, partly ruined, form a pair of monuments in the east of Dowth main tumulus. The chamber of tomb J, described by G. Coffey (1892: 51) and whose plan was drawn by M. Herity (1974: fig. 26), contains at least a carving of spiral, unfortunately not drawn (C. O'Kelly 1973: 356; 1978: 54-55).

The passage tomb of <u>Tara</u> is located on the eponymous hill and is integrated into a group of ceremonial sites built and used from the Neolithic to the Middle Ages. The monument which interests us is called *Duma na nGiall*, « the Mound of the Hostages ». It consists of a simple rectangular chamber, without a passage, compartmented into three parts and covered by a circular cairn of about fifteen meters in diameter. The tomb and its contents, very well preserved, were excavated by S.P. Ó Ríordáin in 1955 and 1956, then by R. de Valéra in 1959. The excavations data and their analysis were

recently published by M. O'Sullivan (2005).

The first orthostat of the left wall of the tomb carries the many carvings drawn by E. Shee Twohig (1981) and U. Mattenberger (O'Sullivan 2005). Other carvings, not drawn, were observed on the back face of the first orthostat of the right wall and on a boulder discovered in secondary position in a Bronze Age ditch (O'Sullivan 2005: 66-8).

The passage tomb of <u>Fourknocks</u> had undergone no plundering when P.J. Hartnett undertook the excavation of the site (Hartnett 1957). The monument is located on the summit of a hill dominating the Delvin valley and consists of a cruciform chamber surrounded by a circular tumulus. This is the largest chamber known in a passage tomb and the technique of construction of its roof could not be defined with certainty (corbelling, central supporting post, wooden roof?).

The carvings of the tomb, drawn by E. Shee Twohig (1981), are distributed on the entrance lintels of the passage, chamber and cells as well as on five orthostats.

The cairn of <u>Tibradden</u> (Co Dublin), excavated in the middle of the XIXth century, contained a cist whose architecture was not precisely described. The restoration of the cairn presents an central space accessible from a passage and the belonging of the monument to the passage tomb family is problematic (Farrington 1933; Daniel 1959; Evans 1966). In the center of this central space is a fragmented stone carrying a simple spiral of wich no drawing is known.

The datings of the two two carved stones of <u>Dun Laoghaire</u> (Co. Dublin) are also doubtful. Whereas the circumstances of their discovery are not clear, the carvings are made in a style different from Neolithic parietal art. The stones, drawn by M.V. Ronan (1932) and L. Gogan (1932) are regarded as modern creations by E. Shee Twohig (1981: 236). In the absence of certainty, the carvings were left in the data base of the study.

The passage tomb of <u>Seefin</u> (Co. Wicklow) is set on the summit of the mountain of the same name, located in the Wicklow Mountains. The monument consists of a circular cairn surrounded by a kerb and covering a chamber with double transept. The roof of the chamber is corbelled and the passage is covered with simple slabs.

The monument was described and its plan drawn by R.A.S. Macalister (1932). Two opposed orthostats in the passage carry angular signs, drawn by R.A.S. Macalister (1937), E. Rynne (1963) and E. Shee Twohig (1981).

The carved stone of <u>Tournant</u> (Co. Wicklow) was extracted at the beginning of the 19th century from the center of a tumulus containing most probably, originally, a passage tomb (Shee Twohig 1981: 225). It was described by several archaeologists (Shearman 1862; Fitzgerald 1914; Walshe 1931: 120; Price 1934: 38-9, 42) and its carvings has been recorded by E. Shee Twohig (1981).

The cairn of <u>Baltinglass</u> (Co. Wicklow) is on the hill of the same name and commands the Slaney valley. The monument, built in several phases, presents several altered kerbs and contains three

chambers of distinct plan as well as two funerary cists. The excavations of the cairn were directed by P.T. Walshe from 1934 to 1936 (Walshe 1935, 1936, 1941) and opinions differ on the chronological order of the construction stages of the site (Walshe 1941; Childe 1940: 65; Piggott 1954: 199; Shee Twohig 1981: 223). The carvings rubbed by P.T. Walshe (1941) and drawn by E. Shee Twohig (1981) are on three kerbstones, two orthostats and a stone basin.

The cairn of Knockroe (Co. Kilkenny) formed part of a group of cairns and passage tombs distributed along a east-west axis on the summits commanding the Suir valley from the north (see map on figure 7.13). The monument consists of a circular cairn with a kerb and two passage tombs. The western tomb is made of a pear-shaped chamber with a short passage whereas the eastern tomb consists of a compartmented chamber with five cells.

A description and a plan and section drawing of the site were published by S. Ó Nuallaín and E. Cody (1987: 71-74) and the excavations, entrusted to M. O'Sullivan, required ten campaigns (O'Sullivan 1991, 1992, 1993, 1995, 2004). A final monograph of the site is currently on preparation.

The parietal art of the site appears on seven kerbstones, 15 orthostats and two capstones. Most of the carved stones were the subject of a first record before the excavations of the site (O'Sullivan 1987) and two unpublished stones have been drawn for the present thesis.

The site of Clear Island (Co. Cork) is particularly far away from the Irish Sea region since it is located on the south-western coast of Ireland. Only one carved stone bearing typical passage tomb signs (spiral, arcs, meandering lines, chevrons) survived. The precise location as well as the circumstances of the discovery are unknown but the mention of a tumulus was collected by M. O'Kelly (1949). The latter, as E. Shee Twohig (1981), drew up a record of the stone and its carvings.

1.1.3.2. The Welsh sites

The passage tomb of Barclodiad y Gawres is set at the end of the Trecastell point, on the southern coast of the island of Anglesey. The circular tumulus contains a passage leading to a cruciform chamber over which only one capstone survived. The monument was excavated in 1952 and 1953 by T.G.E. Powell and G.E. Daniel (1956) and the five carved orthostats were drawn by F. Lynch (1967) and E. Shee Twohig (1981). Other carvings in straight lines, recently identified by G. Nash, would be on orthostat C2 (Nash *et al.* 2005); those were not included into the corpus because of their unclassable form.

The Neolithic site of Bryn Celli Ddu, located near the south-eastern coast of Anglesey, shows two distinct architectural phases. The monument, which is today a traditional passage tomb (simple chamber, passage, round tumulus) was excavated in the 1920's by W.J. Hemp and revealed older structures under its tumulus: a stone circle, a central pit burial and a carved stele lying partly over it (Hemp 1930, 1931).

The interpretations of these archaeological facts differs and various chronological models were offered. For C. O'Kelly, the passage tomb were established on a previous architecture of different type: a bank and ditch enclosure surrounding a stone circle and some pit burials (C. O'Kelly 1969; Shee Twohig 1981: 230). For G. Eogan and R. Bradley, the history of the site concerns only

one architectural type, built in two phases. They imagine the first monument of Bryn Celli Ddu as a chamber with a small passage and covered with a small tumulus surrounded by a stone circle and a ditch enclosure. The second phase would correspond to an enlargement of the tomb with an extension of the passage and tumulus, and to the construction of the kerb (Eogan 1983; Bradley 1998: 8-9).

The parietal art of the site appears mainly on the late stele discovered over the central pit, located under the tumulus behind the passage tomb chamber. Covered on all of its faces by meandering lines, it constitutes an exceptional element of Neolithic funerary art. The stele and its carvings were drawn by W.J. Hemp (1930) and E. Shee Twohig (1981). A small spiral is also carved on orthostat 4 in the tomb (not drawn).

The stone of <u>Llanbedr</u> (Meirioneth), carved with a large spiral, was discovered in the 1860's reused in a church and its exact origin is not known. F. Lynch made a comprehensice history of research on the carved stone of which she gives a precise drawing (Lynch 1992). The technique of picking and the style of the carvings are similar to those of passage tomb art.

The six carved stones of <u>Calderstones</u> (Liverpool) come from a tumulus of which there remain only some historical mentions. Arranged as a stone circle in Calderstones park, the slabs were then acquired by the Liverpool Museum which took in charge their conservation. The carvings, typical of passage tomb art, were drawn by J. Simpson (1865) and J.R. Allen (1883). The complete history of the site and the drawing of the stones were done by J.L. Forde-Johnston (1957). E. Shee Twohig,made further records in her inventory (1981).

1.1.3.3. The Orcadian sites

The passage tomb of <u>The Holm of Papa Westray South</u> is part of a group of three tombs built on a islet located east of Papa Westray island, in the north of Orkney archipelago (map 1.9). The monument, very well preserved, consists of a large and long cairn containing a gallery chamber, 13 meters long and opening onto 14 side cells, accessible from a transversal passage. Like the majority of funerary architectures in Orkney, the southern tomb of Papa Westray is built in dry stone wall and not with large stones.

Picked carvings are on the apparent face of five rubble stones and represent chevrons, lozenges, circles, arcs and cupmarks. These were noticed at the time of the excavations of the site (Thomas 1852: 127-9) and were drawn by G. Petrie (1857) and E. Shee Twohig (1981).

The passage tomb of <u>Pierowall</u>, on Westray island, was destroyed and re-used as bases for various settlements from the end of the 3rd millenium to the Iron Age. N.M. Sharples carried out salvage excavations on the site, menaced by the extension of a career, which led to the discovery of three slabs carved with spirals and parallel arcs, most probably used as walling elements in the late Neolithic tomb (Sharples 1984).

The tomb of <u>Quoyness</u> is one element of a group of 13 cairns distributed around the southern point of Elsness islet, in the south of Sanday island. The monument consists of a circular

cairn with a central chamber built of dry stones. The chamber opens onto six side cells distributed in a symmetrical way on each side of the axis defined by the passage of the tomb. The monument was excavated by J. Farrer in 1867 (unpublished) and by V.G. Childe in 1951 and 1952 (Childe 1952). Incised chevrons were recently identified and drawn by R. Bradley (Bradley 1998a; Bradley *et al.* 2000).

The carved stone of Eday Manse comes from a passage tomb destroyed at the beginning of the XIXth century for building work and of which remains only a part of the cairn. The site, located on a hillside, constitutes the southernmost element of a group of passage tombs on Eday island. The picked figures represent a double spiral, two concentric circles and parallel arcs. These carvings were drawn by R.J. Hebden (1862) and E. Shee Twohig (1981).

A stone decorated with cupmarks and another carved stone of circles and cupmarks are inserted in the masonry of the protohistoric fort of Broch of Midhowe (Callander & Grant 1934: 484-5). They could be reused stones coming from a destroyed passage tomb. Many architectures of this type are indeed distributed on the southern coast of Rousay island.

The passage tomb of Maeshowe constitutes the most monumental funerary architecture of the archipelago. Located on the principal island (Mainland), on the south-eastern bank of the Loch of Harray, the monument consists of a tumulus of 37 meters in diameter surrounded by a ditch and a bank enclosure. The cruciform tomb, built with very large slabs, includes a passage, a chamber and three small cells. The latter, as the chamber, are corbelled. The site, plundered during Scandinavian invasions, was excavated by J. Farrer (Petrie 1861; Farrer 1862), J Stuart (1862), V.G. Childe (1955) and recently by C. Richards (2005).

Among the many runic inscriptions on the walls of the tomb (Mitchell 1864; Carr 1866, 1870), P. Ashmore (1986) and R. Bradley (Bradley *et al.* 2000) identified geometrical incisions representing chevrons and lozenges dating from the Neolithic period. Apart from these geometrical figures, diffuse pickings also appear on some orthostats and lintels of the chamber (Eogan 1992: 123).

Five kilometers east of Maeshowe is the monument of Cuween Hill. Built on hillside, the monument is similar to Qoyness with a circular cairn, a passage, a transverse chamber and five side cells. The site, excavated at the beginning of the XXth century (Charleston & Turner 1902), present incised chevrons and lozenges on three stones (Bradley 1998a; Bradley *et al.* 2000).

The passage tomb of Wideford Hill, located four kilometers east of the previous site, presents the same topographic implantation (hillside looking north) and the same architecture (transverse chamber with three side cells). R. Bradley identified there four stones with incised chevrons (Bradley *et al.* 2000).

The Pickaquoy stone and its picked concentric circles was extracted from a passage tomb excavated by J. Farrer in 1853 (Farrer 1864) which is now destroyed. G. Petrie gave a description of the site and did a drawing of the carved stone (Petrie 1857). A more recent record was done by E.

Shee Twohig (1981).

1.1.3.4. The parietal art of the megalithic enclosures of the British mid-west

In Cumbria and Argyll are three elaborate megalithic enclosures built with standing stones, spaced out and arranged in a circle. This type of architecture is not rare in the British Isles, however the presence of complex geometrical signs (others that cups and circles) is extremely rare. The three monuments concerned are located at the edge of the Irish Sea and their iconography as well as the arrangement of the signs bring them closer to the carved passage tombs. For these reasons, and despite the different nature of their architecture, these carved megalithic enclosures are included in the corpus.

The monument of <u>Temle Wood</u> is in a group of Neolithic monumental architectures (chambered cairns, standing stones) concentrated in Kilmartin valley in Argyll. The site consists of a circle of 21 standing stones inside which cists were established during a recent phase (final Neolithic era). Stele 11 is carved with two concentric circles on its outer face whereas stele 9 presents a double « horned » spiral made with a triple line, extended on two adjacent faces of the stone.

This long known monument was extensively excavated by J.G. Scott from 1974 to 1980. The detailed plan of the site as well as a drawing of the carvings are in the excavation report (Scott 1988).

The megalithic enclosure of <u>Glassongy</u> has not been scientifically excavated and its architecture is less known than the previous monument. The site is on a hillside and overlooks the Eden valley. Only a part of the enclosure is preserved around a very low cairn. The boulders are also low and their contiguous arrangement resembles a passage tomb kerb.

S. Beckensall recorded carvings on the inner face of one of these boulders (Beckensall 1999). The motif, formed of concentric circles, arcs and chevron, is typical of passage tomb iconography.

The monument of <u>Castlerigg</u> is well known of by the general public. Located on a pass dominating the lake of Derwent Water, the site consists of a circular enclosure of 38 spaced steles inside which is a quadrangular structure, also delimited by standing stones. The monument was described by W. Stukeley (1876) and C.W. Dymond (1880) and was briefly excavated by W.K. Dover (1883). At least three orthostats carry carvings of signs usually found inside passage tombs. Stone 5 carries an arc and stones 10 and 27 present a carved lozenge. These signs were drawn by S. Beckensall (1999) who also identified a spiral on stele 11. However, a recent attempt of laser scanning did not manage to find the sign mentioned (Diaz-Andreu *et al.* 2006).

1.1.3.5. Irish parietal art in Morbihan (France)

The object of study of this dissertation is exclusively limited to the British Isles. However, in order to support certain demonstrations concerning the spatial organization of the signs, the passage tombs of Le Petit Mont and Gavrinis (Morbihan) will be some times quoted. Both monuments, indeed, present in the Armorican group a separate parietal art whose repertory is closer to Irish carvings (spirals, parallel arcs, radiates signs, chevrons, etc).

The analogy between Irish carvings and those in Le Petit Mont and Gavrinis was pointed out by several archaeologists (Ferguson 1863; Healy 1892; Déchelette 1908: 604-14, 1912; Breuil & Macalister 1921; Breuil 1934, 1937; Breuil & Boyle 1959; Piggott 1954: 216-7; Herity 1974: 109-12; Shee Twohig 1981: 108; Le Roux 1992; O'Sullivan 1996) and was the subject of a previous academic dissertation (Robin 2003: 134-49). Although both monuments do not take part in the corpus, we wish to present them briefly here in order to justify their comparison with the Irish tradition.

The cairn of Le Petit Mont (Arzon), located at the end of the Rhuys peninsula, contains three passage tombs and was built on an early Neolithic long barrow. The monument was excavated partly by D. de Cussé in 1864-6 (unpublished) and by Z. Le Rouzic in 1904 (Le Rouzic 1912), then entirely by J. Lecornec from 1979 to 1989 (Lecornec 1985, 1987, 1994). Tomb III consists of a quadrangular chamber with a passage and a monumental portal. The carvings were identified on 11 orthostats of which four were destroyed by construction of a bunker during the second World War.

The parietal carvings of tomb III is distinguished from those from the other tombs in the cairn : the signs represented are mainly chevrons, but there are also meandering lines, boxed arcs and radiate circular signs. The recording of these carvings was made by D. de Cussé (1865) and Z. Le Rouzic (Péquart, Péquart & Le Rouzic 1927) then, more recently, by F. Lynch (1967), E. Shee Twohig (1981) and J. Lecornec (1990, 1994, 1996).

The island of Gavrinis is located a few kilometers north of Le Petit Mont, at the entrance of the Gulf of Morbihan. The cairn is located at the southern end of the island and covers a large passage tomb formed by a broad passage and a rectangular chamber, the whole being covered and paved with large slabs. The tomb was known and explored from a long period when the first scientific excavations by G. de Closmadeuc were undertaken from 1884 to 1886 (Closmadeuc 1886). The monument was then restored by Z. Le Rouzic and then again excavated from 1979 to 1984 by C.-T. Le Roux (1985).

The parietal art of the site, drawn by E. Shee Twohig (1981) and C.-T. Le Roux (1984), is distributed on 23 orthostats, one sillstone and on the chamber capstone (reused stele fragment). E Shee Twohig (1981) identified two chronological stages in the iconography: the first one is represented by carvings of axes, crooks, arcs, « idols » (traditional signs of the Breton repertoire) and horned animals, whereas the second stage is characterized by large figures in parallel arcs, spirals and chevrons which cover the majority of the walls. The first carvings may come from reused steles whereas the second ones may have been conceived after the completion of the funerary architecture (Le Roux 1992).

1.2. Definition of the subject

The object of the study being defined and delimited, let us now see the questions which are at the origin of this research dissertation. In order to understand the immediate context of this study, we will first present a short history of the subject. Then, we will expose in a second point the initial questions and the working hypotheses which formed the base of the subject. Lastly, the problematics of the thesis and the objectives of the research will be specified in order to give a precise definition to the subject.

1.2.1. <u>Origin of the subject</u>

At the origin of this research subject is an Erasmus stay of two semesters, spent in University College Cork in 2002-2003. The purpose of this year of European exchange with the Université Jean Moulin Lyon 3 was to validate a Master 1 degree in History. The subject of the dissertation (Robin 2003), supervised by D. Philibert and S.A. de Beaune (Université Lyon 3), was first of all on the megalithic architectures of Ireland and then evolved to a comparative analysis of the parietal art of the island with the other Western-European similar contexts (Brittany and Iberia). The main part of the research, bibliographical, was done in Cork University (library and department of archaeology) with the assistance of E. Shee Twohig.

At the end of this dissertation, various gaps were noted in the general study on the location of the carved signs and on their spacial layout within the multiple existing combinations. Taking into account the great number of carved stones and the diversity of the geometrical repertoire, it seemed possible to develop a systematic study of the signs which would enable to identify recurrences in their associations and their position on the structural stones of the passage tombs.

This working hypothesis constituted the heart of the research supervised by S. Cassen in Nantes University for the preparation of a Master 2 degree (Robin 2005). This study, conceived like a preliminary work for a PhD thesis, gave various results and thus validated the starting questions. In addition new questions appeared which were regarded as necessary to develop.

1.2.2. <u>Working hypotheses and initial questions</u>

The construction of the subject is based initially on working hypotheses on which questions are then founded. These hypotheses and questions form the base of the subject.

- Hypothesis 1: the carvings in passage tombs are not simple ornaments but are signs carrying a certain value or a certain signification.
- Hypothesis 2: the combinations of signs and their location on the stones and within the tombs are not random but obey a code or a predetermined outline which was meaningfull for their authors.
- Question 1: Considering the impossibility of an interpretation of the signs (geometrical figures), is it possible to perceive the formal structure of the parietal art ? What means could

help in identifying it ?
- Question 2: if it is possible to discover a structure in the signs layout, can this inform us about the function of each sign or about their symbolism?
- Question 3: Do the many carvings on hidden surfaces result from re-use, like in Morbihan passage tombs? Is it on the contrary a deliberate act with an exclusively symbolic value?

1.2.3. Problematics and objectives of the research

The answer to the preliminary questions and the validation (or not) of the working hypotheses constitute the problems of a subject of search. Our problems are formed of various points which have all as a finality to show the existence of a structure in the layout of the Irish parietal signs.

- Objective 1: demonstrating the existence of « grammatical rules » in the signs associations and making their inventory. Showing that the iconographic repertoire of parietal art is composed of elementary forms (signs) as well as small built compositions (signs combinations). Means: by using a database integrating the whole corpus of the carved signs, comparing the stones presenting the same signs selection and identifying the significant recurrences within the signs combinations.
- Objective 2: demonstrating and listing the various links between the iconography and the structural stones relief. Means: by using the database, observing the locations of each category of signs and signs combinations, and identifying the significant recurrences.
- Objective 3: demonstrating and listing the various links between the iconography and the architecture of the passage tombs. Means: using the database, observing the spatial distribution of each category of sign and signs combinations, and identifying the significant recurrences.
- Objective 4: demonstrating that certain hidden carvings result from re-use. Means: using the iconographic rules and of spatial organization identified, showing the « wrong » position and orientation of the carvings concerned and proposing a « correct » restitution of them.

1.3. Methodology

The preparation of a thesis is a difficult exercise consisting in making a specialized research and in presenting it within three year. In the case of this present work, the various tasks of investigation (data acquisition and analyse) and of representation (organization and finalization of the results) were carried out together within the time allowed. The first year was devoted entirely to library research, in order to acquire and to analyze a maximum of textual and iconographic sources on the studied sites. The most important questions were mainly developed during the second year in parallel to several fieldwork sessions (carving recording). The last year was spent completing the data analyses and writing the present dissertation.

The various means and tools adopted during these three years can be classified in two categories according to their finality. Some were used for investigation (or research) purposes, while

others were used for representation (or demonstration) purposes.

1.3.1. Means and methods of investigation

1.3.1.1. List of computer equipments and softwares

Computer equipement:

- Computer Appel Power Mac G5 OS X with monitor Philips 200P
- Laptop Apple iBook G4 OS X
- Graphic tablet Wacom Intuos 2
- Scanner Epson Perfection 3200 Photo

Softwares:

- Office softwares: Microsoft Word, Excell, Powerpoint (Office X)
- Graphics: Adobe Photoshop, Illustrator (CS2)
- Three-dimensional modelling: Realviz ImageModeler
- Layout: Adobe InDesign (CS2)

1.3.1.2. Composition and use of the database

The database was the main tool used for investigation (table 1.10). Created with Microsoft Excel, it consists of a table of 20 columns, similar to the one made by E. Shee Twohig in its inventory (1981). A total of 634 carved stones were integrated into this inventory, divided into 644 lines (certain stones, carved on several faces, present two panels whose iconography or architectural location is distinct; they have then been dissociated).

The first column of the database indicates the shortened name of the carved stone according to the nomenclature used throughout this dissertation. This name presents two parts separated by a dot: the first indicates in two or three letters the name of the site and the second part indicates the number of the stone. For this last element, the current nomenclature was kept: *Or* for « orthostat », *R* for right passage orthostat, *L* for left passage orthostat, *C* for chamber orthostat, *K* for kerbstone, *RS* for roofstone, and *Co* for corbel.

The three next columns of the table indicate the country, the county and the name of the site. Columns 5 to 15 indicate the presence (shaded square) or the absence (white square) of the sign of reference. A question mark announces a carving close to the sign of reference but whose nature is not clearly identified. Column 16 indicates the bibliographical source in which is the drawing of the stone used as reference. The four last columns refer to the location of the stone in the monument: kerb, passage, chamber, cell. The numbers in the last column indicate the position of the cell: on the right (1), on the left (3) or in the back of the chamber (2).

The main interest of the software for our research lies in the tool called « list manager ». The latter indeed enables to select a criterion in each column and thus to create automatically a list of stones carrying common characteristics. It is, for example, possible to select all the Scottish stones with spirals and triangles, or every Irish carved kerbstones with circles and chevron but without lozenges nor cupmarks. As a great part of our study consisted in comparing stones presenting the

same selections of carved signs, this tool was of an invaluable help. It was also quite useful for the analysis of the relations between iconography and architectural space or for certain statistical calculations.

1.3.1.3. Recording carvings from digital photographs

      All the carvings examined in this thesis have, except some examples, been drawn by previous archaeologists. However, some new recordings were carried out on stones whose carved signs, particularly important in certain parts of the analysis, were not clearly defined on the existing drawings. It was indeed important to be ensured of the carved forms by the method described below which has the advantage to be more precise than the traditional methods used until now. Moreover, certain carved stones, like in Knockroe, have never been published and a recording was essential to incorporate them in the study.

      Three fieldwork sessions were made during the second year of the PhD. The first one, in September 2006, was done in Loughcrew necropolis (figures 1.14 to 1.19). The recordings focused on tombs F (orthostats C1, C5, R2), H (sill, orthostat C14), I (orthostat C5), O (slab), S (orthostats C2, R2), T (orthostats C1, C2, C3, C8, C14, sill 1, sill 3, RScell2) and U (orthostat C2).

      A second operation, also led in September 2006, was devoted to the carved capstone of Carnanmore (figure 1.19). Lastly, the third recording session was concentrated on two carved stones in Knockroe cairn: kerbstone 15 and the capstone of the western tomb (figure 1.20).

      The method used to record these Irish stones was invented by S. Cassen in the early 2000's (Cassen & Vaquero Lastres 2003b) and some improvements were added during the PhD. The principle lies on a synthesis of several photographs taken from a fixed station on a same carving lit with various successive oblique lights. These various lightings reveal the whole carved reliefs which are then manually drawn after the photographs. This technique thus is applied in two steps. The first phase is realised in the field where the photographs are taken. The second step is carried out in laboratory where the images are worked on in computer graphics processing.

      The photographic work in the field requires a light equipment, affordable for a laboratory of social sciences: a camera with an adaptable level, a tripod, a powerful electric torch, a black tarpaulin of great dimension, a ruler and a laptop.

      The positioning of the photographic equipment is very important (figure 1.11). The camera must be placed perpendicularly to the carved surface and directed towards its center. Darkness is necessary to use oblique lights, also, when the stone is outside, the best is to take the photographs at night. Another solution consists in covering with a black tarpaulin the carved stone and the camera so as to create a « darkroom ». In this process, an aluminium tent structure was often used in order to support the tarpaulin over the working area.

      Once the equipment installed, several photographs are done from the fixed station. Each stereotype is taken with a different lighting shaving while exploiting two parameters: direction of lighting and the angle of incidence of the light. Approximately forty photographs are necessary to record all the reliefs of a engraved flagstone of average size. The number of stereotypes varies

according to the complexity of the engraving and its state of conservation. When the session of catches of sight is finished, the images are backed up on a laptop.

The second phase, in a laboratory, begins with preliminary processings of the photographs (figure 1.12). In Adobe Photoshop, they undergo an equalization of the luminosity (Image > Settings > Equalize) so that the whole range of the luminosity levels is represented more regularly on the whole photograph.

A second processing consists in straightening the photographs in order to correct the focal distortion of the camera. This operation is done in Adobe Illustrator: the photograph, opened in a new file, is framed in a quadrangular figure (Rectangle tool) then the process of « dilation » is applied to both selected objects (Object > Distorsion of the envelope > Create from a deformation). The degree of inflexion of the dilation is generally set between -7 and -9%. Once the transformation operated, the photograph and the quadrangular figure must be dissociated (Object > Break, then Object > Dissociate).

The drawing of the carvings is also carried out under Adobe Illustrator (figure 1.13). Each photograph is the different file object in which the engraved reliefs revealed by shaving lighting are drawn manually in a distinct color (Crayon tool) using a graphics tablet. The line used for the drawing was created especially for the method of statement: it has the characteristic to present barbules on a side. The principal line of the layout is applied to the contour of the engraved layout whereas the barbules are directed automatically towards the interior of the engraved layout.

When all the photographs has been drawn, the layouts of all the files are superimposed in a new file which constitutes then a drawing of synthesis presenting in only one sight the unit of the reliefs revealed by shaving lightings. In this drawing of synthesis, the lines with barbules make it possible to represent at the same time the contour and the interior of the layouts of engraving, thus avoiding any confusion in the case of signs in parallel lines (concentric circles, spiral, arches encased).

Lastly, the synthesis file is used as a basis for a codified final drawing or the rock is represented in gray (level 50%), the contour and the reliefs of the stone in black layout and engravings on the white surface.

This method of carving recording presents some disadvantages. The process requires a lot of time in CAD and the many graphic files occupy an important digital memory. However, it has many advantages. The technique is affordable and technically accessible. The recordings carried out are of a very high degree of accuracy: oblique lights reveal the least detail of the carved reliefs and working on photographs enables a detailed observation without time constraint, which is more difficult during direct drawing on the site. Contrary to rubbing, our method of recording from photographs does not distort the stone configuration and does not require any contact with the carvings (not invasive). The final drawing, in vector drawing, can be modified more easily than a pixel image (colours, contours, etc). Lastly, every stages of the process, from the recording of the reliefs until the drawing, can be controlled by the present and future generations of archaeologists. Since « drawing is chosing » (Lorblanchet 1995), the method enables to check every choice of the author of the drawing, which

is impossible in traditional techniques, controllable only by a visit on the site.

1.3.2. <u>Means and methods of representation</u>

1.3.2.1. Computer graphics: plates, maps and illustrations

In a thesis on ancient graphic representation, the demonstration by the image is at least as important as the demonstration by the verb. The argumentation of this dissertation is perhaps more carried by the images than by the text. Also a significant number of plates and illustrations have been made and we took particular care in preparing them.

The techniques of computer graphics were intensely used during the preparation of this work. Many images composing the illustrations were processed in Adobe Photoshop (extraction of image, modification of the colours and contrasts, combination of elements, etc). The software most used was Adobe Illustrator for the realization of the plates and vector drawings (carvings drawings, topographic maps, diagrams).

1.3.2.3. Three-dimensional modelling from digital photographs

In the analysis of the relations between iconography and stone relief, the modes of representations in two dimensions are sometimes insufficient to show the location of a carved figure on a irregular surface or a complex volume. The use of a three-dimensional tool of representation is essential for this type of question (Cassen *et al.* 2006).

Most of these tools being very expensive and requiring particular knowledge (ex: laser scanning), the ImageModeler software by Realviz seemed an appropriate solution. This tool of representation was very little used in our research but the aim was more to explore the possibilities of application of the software, generally used in the commercial sector, on our archaeological object. We present here the technical operation of the software and its scientific interest will be discussed in section 5.2.2.

The software Realviz ImageModeler is a three-dimensional modeling tool from digital photographs. Its principal interest lies in its easy use and in the realism of the textures of the model, extracted directly from the photographs. Its principles of operation are as follows: the photographs imported in ImageModeler must be digital and the object to be modelled must be taken from different stations. By manually indicating the position of common points of the object on each photograph, the software automatically creates a 3D points cloud. By triangulation of this points cloud, the user can thus realize manually or automatically a polygonal model. Lastly, the textures extracted from the photographs are automatically applied to the model, so giving to it a very realistic aspect. Thus, the process divided into three stages: calibration, modelling and texturation (figure 1.21). These three stages, described in detail in a previous internal report within the LARA (Robin 2004), are briefly presented here.

The phase of calibration starts with the importation in the workspace of several digital photographs (four maximum) of the carved stone (File > Load Images). Then, several points of the stone must be indicated on each imported photograph. The placement of the markers must

follow the following objectives: the marked points must appear on several images, all if possible; the markers are to be distributed on the whole part of the object, and must be placed on different plans and depths.

When a certain number of markers are registered, twelve generally, the software has enough informations on the shape of the object and automatically creates a points cloud in three dimensions. In the case of a carved stone, a complex relief, it is however necessary to continue the calibration by placing at least hundred markers. The software help this stage: after the placement of a marker on the first photography, coloured line guides appear in the other photographs.

The second stage consists in transforming the points cloud into a polygonal model in three dimensions. The modeling is done by triangulation of the points cloud: three points are connected by lines which form then a triangular surface. The software can process automatically this operation (Scene > Creation > Create Mesh) but the complexity of the relief of certain stones often requires some manual corrections.

The last stage is quick. It consists of extracting and synthesizing the texture of the triangulated surfaces on the photographs and to apply them to the corresponding faces of the 3D model. The operation is automatically done by the software (Texturing > Extract textures) and the quality of the final result depends primarily on the precision of the points cloud. New textures can also be added by calibrating new photographs of the same flagstone, taken for example with oblique lights.

1.3.2.3. Translation

This PhD research falls within the framework of an international co-supervised PhD convention (*cotutelle de thèse*) between the University of Nantes and University College Dublin. A bilingual presentation of the full text and illustrations was essential for an international evaluation (four of the six members of the jury are anglophone). This specificity then required an important work of translation from French to English. This delicate exercise was realised with the help of the Systran translation software and of certain specialized bilingual dictionaries, especially in geology (Michel & Rhodes Whitmore 1980).

1.3.2.4. Layout of the dissertation volumes

The final layout of this PhD dissertation was made in Adobe InDesign. This software indeed offers a management of the pictures and text zones much more effective than that proposed by traditional word processing softwares.

Chapter 2

History of the archaeological research on Irish passage tomb art

It would be wrong to think that Irish megalithic monuments disappeared from man's memory and knowledge from the end of Prehistory to the first archaeological explorations in the late 18th century. These architectures, chambered cairns or standing stones, had a major place within the Celtic mythology of the isle in which, under the terms of *brugh* or *sid*, they were considered as the dwelling of the *tuatha dé Danann*, gods of another world and of another time (O'Kelly 1982 : 43-47 ; see the *Senchus na Relic*, the history of pre-christian tombs, a part of the *Leabhar na h-Uidhri*, a compilation of ancient texts written during the 12th century – Gilbert *et al.* 1870). The monuments, so interpreted, were well known amongst the populations of the isle, as the toponymy and the many legends and tales testify it.

Thus, the passage tombs did not disappear from human knowledge and people never stopped seeing them as special places, dwelled in by beings of another time. Only the approach has changed with the coming of archaeology, bringing new questions and new methods that deeply modified the perception of these funerary architectures.

The carvings on the wall of these monuments appeared only « recently » in written texts despite the fact that many carved stones were visible for centuries. The account made by E. Lhwyd in the early 18th century is regarded as the first mention of Irish passage tomb art in the archaeological litterature and this date is traditionally considered as the beginning of the history of the research on the subject (Herity 1974 : 1 ; Shee Twohig 1981 ; O'Sullivan 1988 : 11-59).

The aim of this chapter is not to make a chronological table of the research but to propose a thematic analysis of it. This choice is justified by the need to identify the different scientific approaches to Irish passage tomb art.

This exercise of epistemology is not a novelty since M. O'Sullivan published in 1986 a paper intitled « approaches to passage tomb art » (O'Sullivan 1986). Away from the traditional chronological study, the author distinguished with distance and a critical sense the different trends that marked the research in Ireland, particularly from the 1960s to the 1980s. The following study is inspired by this method of analysis and proposes a thematic epistemology including many recent works made from the 1990s. This chapter is above all synthetic and its objective is to define the scientific context in which our own research takes place. We also specify that certain parts of this history of research, bearing on very specific topics, are attached to the chapters concerned in the following parts of this dissertation (see sections 4.1, 6.1 et 8.3).

Three main approaches are distinguished here, corresponding to the three successive steps encountered by any archaeologist in passage tomb art study. The first one can be called the *descriptive* approach : it consist in the archaeological recordings of the monument and of their carvings, that

is mainly monographies or catalogues like the one published in 1981 by E. Shee Twohig on « the megalithic art of Western Europe » (Shee Twohig 1981). The second approach, the *analytic* one, goes beyond the simple description and proposes different considerations. Some authors made classification of motifs and tried to define several graphic « styles ». Other authors searched the carving techniques or proposed different stages of evolution in passage tomb art. Finally, the third approach can be called the *interpretative* approach, looking for an origin or a signification for the art and its context. In view of the geometric nature of the motifs, few authors went into this dangerous field. Three main interpretations are presented here.

2.1. Inventories, recordings and descriptions of passage tomb art

The first text about Irish passage tomb art came from the astonishment of a traveller. In a letter dated 1699, the Welsh antiquary E. Lhwyd makes the account of his visit inside the tomb of Newgrange, recently re-open after several centuries (Lhwyd 1709). Fascinated by the monument and its carvings, the visitor wrote several letters and made various drawings (Rowlands 1723 ; Westropp 1916 ; Ó Riordáin & Daniel 1964 ; Herity 1967). Nevertheless, Lhwyd's enthusiasm was not shared by all his contemporaries: T. Wright, another 18th century antiquary, described for example the carvings as « markings », « obscene » and « barbarous » (Wright 1758).

From the end of the 19th century, the tomb carvings were rediscovered and the number of recordings and publications gradually increased. Passage tomb art was thus published in various sites monographies like the ones on Loughcrew (Conwell 1864a, 1866, 1868, 1872, 1873 ; Frazer 1893 ; Rotherham 1897, 1898, 1899), Knockmany (Smith 1841 ; Wilde 1846 ; Doyle 1854 ; Wakeman 1876 ; Coffey 1898), Rathkenny (Conwell 1864b), Kiltiernay (Wakeman 1874, 1881) and Newgrange (Coffey 1892).

The aim of these publications was double : to record the carvings, in order to submit them to the scientific community, and to preserve them as explained by W. Frazer : « a simple record of the rock scribings themselves will have the positive value of preserving an accurate record of their appearance when first uncovered, for since then each year's exposure has rendered them less apparent, from disintegration of the surface of the stones and weathering, and they have also received ill-treatment at the hands of ignorant visitors » (Frazer 1893: 296). These words reveal a certain consciousness in both archaeological and heritage fields.

During the 20th century, most of the carved slabs from passage tombs are published, making known to the whole scientific community the parietal art of famous Irish sites like Dowth (Leask 1933), Knowth (Macalister 1943 ; Eogan 1974a, 1986), Millin Bay (Collins & Waterman 1955), Fourknocks (Hartnett 1957), Newgrange (O'Kelly *et al.* 1978 ; O'Kelly 1982) and Knockroe (O'Sullivan 1987), and also the art from British sites like the Calderstones in Liverpool (Forde-Johnston 1957), Barclodiad y Gawres (Powell and Daniel 1956) or Bryn Celli Ddu (Hemp 1930, 1931) in Anglesey.

This work of recording reaches its apogee with the academic works of E. Shee Twohig and M. O'Sullivan. The former recorded the carvings of all monuments outside the Boyne valley (Shee

1968), an important corpus published in 1981 with its work on Brittany and Iberia (Shee 1973b), making a unique iconographic base (Shee Twohig 1981). The aim of this book is to present a corpus, not to make contextual analyses or interpretations about the origin or signification of the carvings (O'Sullivan 1981b), for that reason it falls within a descriptive approach.

The corpus made by M. O'Sullivan is devoted to the passage tombs of Knowth which has more carved stones than the whole Irish sites (O'Sullivan 1981a, 1988). This work, unfortunately not published yet, revealed the very rich and original art of the most important site of Western Europe, and is the last significant recording work to date.

2.2. The analyses of passage tomb art

2.2.1. The identification of the techniques of execution

The researchers who made the first recordings of carvings were very early interested in the techniques with which those were executed. Various definitions of these techniques were proposed, based on the analysis of the carvings since no archaeological object has been identified as carving tool.

In 1864, in an paper on the Neolithic parietal art of the British Isles, J. Simpson devotes a chapter to the « modes of production of the sculpture » (Simpson 1864 : 10-11). The author proposed there a technique by indirect percussion using a chisel and a mallet, technique which was never called into question thereafter. He also underlines that the marks of this technique, called « picking », are particularly well observed on stones located inside the tombs, those being protected from weathering. J. Simpson also noticed the absence of preliminary improvements on the surface of the stones: for the archaeologist, the artwork was applied directly to the stone, without account of its irregularities. We will see that it is not the case in all monuments.

In a brief article on the art of Loughcrew, M. Burkitt distinguishes four different modes of carving: linear incision, linear picking, « broad deep lines made first by pocking and then polishing the surface till smooth » and area picking, i.e. picking on the whole surface of a motif and not only on its contour (Burkitt 1926 : 53). This original analysis, distinguishing several techniques in passage tomb art, is the first of a long series.

After M. Burkitt, several authors proposed their own analysis, without however really deviating from his original model. Thus, in his famous communication in the Prehistoric Society of East Anglia, H. Breuil defines four principal techniques: (1) incision, (2) picking, (3a) polished picking, (3b) bas-relief and (4) triangles and lozanges in checkerboard, i.e. alternated in picking and bas-relief (Breuil 1934). This model, more developed than Burkitt's one, introduced the bas-relief technique, rather rare in British Isles and particularly used in Newgrange (kerbstone K1 for example). However, the French prehistorian superimposed on his technical analysis a chronological model with a succession of techniques that would be criticized later (Crawford 1955 ; Shee 1973a).

Thus, from the very beginning of the 20th century, the main techniques of carving are

identified: picking (linear picking, area picking, bas-relief) and incision. Every researchers agree on the use of a fine and hard stone point (flint or quartz) and a mallet. However, by analyzing the impacts of certain pickings, some archeologists proposed the use of a metal point at Fourknocks (Hartnett 1957 : 226) and at Newgrange (Ó Riordáin & Daniel 1964 : 53-54, 138). Metal was not known at the time of the construction of these monuments but it is not impossible that certain carvings were made later, during Bronze Age. However, this assumption of a metal chisel did not reappear in the literature unless to be disputed (O'Kelly 1970 : 530). For M. Herity, the very little impacts observed on certain carvings could be due to the use of an extremely fine lithic point (Herity 1974 : 107).

In the second half of the 20th century, each specialist proposed his own classification of techniques. C. O'Kelly distinguishes three different types of picking (« line-picking », « solid or area picking » and bas-relief) in the passage tomb art of the Boyne valley. She regardes incision as a secondary technique, « mainly associated with unfinished or poorly made motifs » (O'Kelly 1973 : 359).

The same year, E. Shee Twohig devoted a paper to the techniques of Irish passage tomb art (Shee 1973a). This is still the most complete work on the question today. The archaeologist takes into account the totality of the process of realization, from the preparation of the stone to its placement in the monument. E. Shee Twohig is thus the first archaeologist to mention the execution of a preliminary picking, in order to eliminate the irregularities from the stone[1] ; she also introduces for the first time the term « pick-dressing » of which she gives an accurate definition (p. 164). Regarding the carvings, E. Shee Twohig distinguished five different techniques: (1) picking (linear); (2) secondary work on the picking (smoothing, hammering and « false relief »); (3) « area picking » ; (4) incision (a. lightly incised lines with ornamental goal, b. deep incised lines, c. graffitis, d. incision used as prelimary guide lines) ; and (5) smoothing.

Lastly, the last contribution to the research of the techniques was made by G. Eogan. For the art of the Boyne valley, the archaeologist reinterpreted the pick-dressing proposed by E Shee. In his opinion, this particular technique was not only used with a pragmatic aim, in order to eliminate the irregularities of the rock, but with a symbolic aim, in order to constitute a specific original motif (Eogan & Aboud 1990). He named this technique « diffuse picking » and recognized for it two categories according to the density of the picking points.

In parallel with the search of the techniques of carving, the contents of engravings were analyzed. The geometrical nature of the carved figures led the archaeologists to establish classifications of motifs and to define various « styles ». This approach, which marked the research since the 1970s, was criticized and called into question at the end of the 1990s.

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[1] W Hemp, during the excavations at Bryn Celli Ddu, had already noticed that certain blocks had been regularized by picking in order to ameliorate their insertion within the architecture of the passage or the roof (Hemp 1930 : 186, 190). However, the vocation of this picking is of an architectural nature whereas the one proposed by E. Shee relates to the chaîne opératoire of carvings.

2.2.2. The classifications of the signs

The classification of the signs is an analytical approach insofar as it requires distinguishing the motifs between them according to their form and giving a precise graphic definition of them. However, these classifications also fall under a subjective vision which generally reflects the opinions of the persons who drew them up. For that reason, they take part sometimes in an interpretative approach. Nevertheless we will limit this presentation to the enumeration of these classifications and their evolution, leaving the questions of interpretation for the next chapter of this study.

The first classifications appeared as early as the 1940s when various lists of representative motifs were proposed (Mac White 1946 : 66 ; Piggott 1954 : 211-213, fig. 33; Eogan 1968 : 335, fig. 22). However, the first rigorous classifications appeared in the academic work of E. Shee Twohig. The latter first distinguished sixteen categories of motifs (Shee 1972a), then eleven (Shee Twohig 1981). In 1973, C. O'Kelly proposed a similar classification with ten categories (O'Kelly 1973). Were retained as principal motifs : the circle, the arc, the spiral, the radial, the parallel lines, the offset motif, the serpentiform, the chevron, the rectangle and lozenge, and the cupmark.

This synthesis of passage tomb art in ten or so categories of motifs did not constitute an end in itself. Indeed, E. Shee Twohig and C. O'Kelly also proposed analyzing the distribution of these motifs in each monument and on each carved stone through large tables of quantified data (O'Kelly 1973 : fig. II; Shee Twohig 1981 : fig. 12). These statistical analyses were thus justified by C. O'Kelly: « while it may be said that the counting of motifs has little to do with the study of passage-grave art, it must nevertheless be admitted that several useful, if prosaic, purposes are served by the above table. In the first place, it enables the ornament content of one tomb or one site to be compared and contrasted fairly accurately with that of another. [...] In the second place, the table sums up the content of Irish passage-grave art as a whole » (O'Kelly 1973 : 374).

The difficulty in studying these carvings, because of their geometrical nature, is certainly at the origin of this statistical approach which could be seen as the only analysis possible. As M. O'Sullivan indicated it, « the temptation for all of us is to take refuge in a statistical analysis of the art. But if such an analysis is to lead anywhere the central questions must be faced eventually » (O'Sullivan 1998 : 39). It is true that this type of work can be useful as a synthesis or as informative bases but it constitutes a very limited analysis. The problem does not lie so much in the reduced results that such an analysis provides but in the distance which it places between the archaeologist and the carvings. Indeed, through these tables and statistics, the analysis is done especially in terms of general proportions and the precise distribution of carvings, such as it appears in the monuments, is not taken into account. It seems important, on the contrary, to study these engraved signs in their initial context, the motifs having to be analyzed as elements of a composition worked out on a stone scale, even on the scale of the monument as a whole. Taken out of this context, the carved motifs become « spatially and temporarily static » (Jones 2004 : 202). In addition, these classifications of motifs offer only a partial vision of passage tomb art. This one is indeed more complex. It is composed of conventional motifs but also of abstract carvings or rare figurations which are excluded for that reason from this type of analysis. « The difficulty with this approach is that it reduces megalithic ornament to a

collection of elementary forms (formal ornament) such as circles or spirals. Non-formal ornament, such as extensive-picking of the surface, is consequently excluded from such schemes of motifs and is treated merely as another picking technique rather than as an ornamental approach in its own right » (O'Sullivan 1986 : 71). Quite conscious of this limit, E. Shee Twohig stressed that « much of the art appears to be quite haphazard and some of designs cannot easily be categorised » (Shee Twohig 1981 : 107).

More recently, in the Bougon conference on megalithism, M. O'Sullivan has proposed an original classification of the Irish carvings. In a very synthetic table, the archaeologist recognizes only six elementary forms (cup, circle, spiral, zigzag, losange/triangle, radiate lines), developed according to several variations where the other known signs are found (arcs, meandering lines, scalariform). In the third part of the table, some examples of combinations formed by these signs are presented (O'Sullivan 2006).

The classification of the signs is a necessary step but it should not be self-sufficient. This work of synthesis has a raison d'être only if it constitutes the preliminary stage of a more precise analysis taking into account the context of the carvings. A study of passage tomb art restricted to this first stage would consider the motifs as independent from each other. However, it seems important on the contrary to analyze these motifs together, in their context, to study their associations and their relative positioning. One cannot understand these geometric motifs only by studying them individually. Each one also exists like an element of a composition including the support (the stone) as well as other motifs.

Let us quote, to conclude, V. Jorge who, about Iberian passage tomb art, reminds us of the same considerations: « It is critical not to divide the "megalithic art" into a collection of individual "motifs", taking as granted that each of them corresponds to a particular, obvious meaning. If we use the metaphor of the text, it is self-evident that, in "megalithic art", we have elements that play a completely different role according to their mutual display and to their topographic situation in the monument as a whole » (Jorge 1998 : 73).

2.2.3. The definition of « styles »

In parallel to the development of tables of motifs, various archaeologists proposed different « styles ». The criteria defining these various styles evolved since the first research of the 1970s and two successive schools can be distinguished: the first one defines styles on the base of the graphic characteristics of the carvings ; the second one uses other criteria like the position of the motifs or the visual effect produced by the carvings. In most analyses proposed, the study of these styles primarily relates to the art of the Boyne valley passage tombs.

The concept of « style » in Irish passage tomb art was invented by E. Shee Twohig (Shee 1968 ; Shee Twohig 1981). The archaeologist distinguished a « Fourknocks style » from a « Loughcrew style » on the base of the graphical characteristics of the motifs in these two sites. The first is characterized by the use of angular motifs: lozenges, triangles and chevrons. Certain particular techniques, like

incision and area picking, also characterize this first group. The « Loughcrew style », contrary to that of Fourknocks, is characterized by the use of curvilinear motifs: spirals, circles, radial motifs, arcs, serpentiforms. These motifs are indeed particularly numerous in the parietal art of Loughcrew passage tombs.

The two styles proposed in 1973 by C O'Kelly are very similar: the « curvilinear style » includes circles, spirals, arcs and serpentiforms whereas the « rectilinear style » gathers chevrons, offset motifs, radial motifs, lozenges and triangles (O'Kelly 1973 : 367-368).

According to different criteria, M. Herity also distinguished two great sets in Irish passage tomb art. A first group gathers the « simple elements or symbols », i.e. all the geometrical motifs, whereas a second group includes all the figures that the author interpreted as « realistic ». In this last category are thus « face motifs », « shields », « feet », « ships » and even a « hafted axe or marmite » (Herity 1974 : 105). This classification, obviously influenced by the Breton repertory, is strongly marked by the interpretations of its author.

In 1986, G. Eogan proposed fifteen styles which, like those of E. Shee and C. O'Kelly, are founded on the form of motifs taken individually: « At Knowth, some stones are decorated with the same motif or a closely similar one, which is either the sole or the predominant motif and, thus, constitutes a style or a composition. A style can consist of one motif, or there may be more than one example but occuring in a balanced manner » (Eogan 1986 : 153).

These analyses of « styles », based on the form of motifs taken separately, present some limits. They rest on preliminary classifications of motifs, an abstract and certainly partial approach which imposes a distance between the analyst and the carved compositions such as they actually appear in the monuments. It is probable that these « styles » form artificial concepts, unknown amongst the societies which produced these engravings. Moreover, as E. Shee Twohig stressed, « in many ways each decorated passage grave in Ireland and Britain has its own distinct art style » (Shee Twohig 1981 : 106).

For these reasons, undoubtedly, other styles were proposed whose new criteria privileged the position of the motifs rather than their graphic form. G. Eogan, about the monuments of Knowth, Newgrange and Fourknocks, noticed that lintels and corbel stones were engraved with angular motifs whereas the curvilinear ones were more concentrated on orthostats of the passages. The author thus showed the existence of a link between art and architecture, each « style » privileging a particular space in the monuments (Eogan 1986 : fig. 60-63, 73, 75-78, 83, 84 ; 1996 : fig. 4-7).

In a same idea, C. O'Kelly distinguished in the monuments of Boyne an « official art » from a « hidden art », this last gathering the carvings on the hidden faces of stones (O'Kelly 1973 : 263).

However, the principal change was brought by M. O'Sullivan. In 1986, the archaeologist called into question the analyses of passage tomb motifs. He criticized the « styles » proposed in the literature and proposed an original and more relevant analysis of Knowth parietal art (O'Sullivan 1986). He distinguished two groups of carvings, the « depictive art » and the « plastic art ». The criteria of distinction are not the positioning of these styles in the monument nor the repertory of motifs used but the visual effect that it produces or not. Indeed, the « depictive art » does not present a visual effect and is characterized by the representation of motifs or individual elements. The plastic

art, on the contrary, translated a will of general visual effect, it « conveyed a marked sensibility on the part of the artist to the physical form of the stone on which it was displayed » (O'Sullivan 1986 : 75). It is characterized by overall engravings, sometimes extended on adjoining stones, and varies from great curvilinear compositions to simple parallel lines.

What assessment can be made of this research of « styles » ? Were these analyses, even rigorous, always quite useful ? What did they really bring ? It should be recognized that the result is often limited and that the concept of « style seems to have been used mainly as a tool to assist in classifying the material » (Shee Twohig 1996 : 68). Besides some exceptions (Eogan 1986 ; O'Sullivan 1986, 1989, 1991, 1996), the definition of « styles » gives little importance to the context of the carvings, to the compositions they form or to the symbolic character of architectures. As A. Powell regrets, « any analysis simply in terms of style ignores both the ideological context of this form of symbolic expression and the social practices of which it is the product » (Powell 1994 : 92). As for the classification of motifs, the research of « styles » was an interesting experience but whose methods and results are criticizable.

2.2.4. <u>The research of a relative chronology of the carvings</u>

The chronological analysis of Irish parietal carvings was often carried out along with the research of the techniques of execution. The first remark relating to the relative chronology of the carvings has been made by G. Coffey who notes that in Newgrange, certain pickings cover or partially erase preexistent carvings. But the first analysis is given by H. Breuil after his visit to the monuments of the island (Breuil & Macalister 1921; Breuil 1934). The French archaeologist thus defines two main ages, themselves divided into various chronological stages. The first period, « the oldest decorative art of Ireland », consists of the incised carvings, realized on funerary chambers of very simple plan. The second period, « the decoration of the Irish Gallery-Dolmens », developed in four successive phases which correspond to four distinct techniques of carvings: incisions, slender picking, deep and polished picked, and extensive picking.

More recently, whereas E. Shee Twohig determines two chronological and stylistic phases in the Armorican tomb of Gavrinis (Shee Twohig 1981), M. O'Sullivan proposes a similar analysis for the art of the tombs of Knowth and Newgrange (O'Sullivan 1986: 76-7). The archaeologist notices that the depictive style is former to the plastic style since the second superimposes the first on several stones. Moreover, the plastic art was carried out after the installation of the stones whereas the depictive style is reproduced on hidden surfaces, sign of its anteriority. M. O'Sullivan distinguishes later a third chronological phase, characterized by pick-dressing occuring on the surface of certain slabs (O'Sullivan 1989: 141-2). In 1996, the archaeologist proposes finally a model in four chronological phases: the first phase of the Irish carvings are characterized by the geometrical signs of the traditional repertoire ; the second phase uses the same repertoire but develops it on the volume of the stones in order to create a visual effect ; the third stage consists of ribbon carvings, deployed without forming particular motifs (abandonment of the traditional repertoire); finally, the last chronological phase is marked by the pick-dressing.

In a study devoted to the superpositions of carvings in Knowth tombs, G. Eogan draws up a similar chronological diagram (Eogan 1997). The archaeologist, as H. Breuil, distinguishes however a first phase of incision from a second phase of picking. According to G. Eogan, the incision was sometimes used as draft on the stone, making it possible to guide the picked artwork.

R. Bradley makes the same chronological distinction between incision and picking in the parietal art of the Orkneys. This model, that the archaeologist recognizes as fragile, rests on a comparison with the evolution of the ceramic decorations of the region (Grooved Ware) and with the Irish model. In the same way, the pick-dressing occuring in the tombs of Maeshowe and Dwarfie Stone would correspond to a late phase of carving (Bradley *et al.* 2000: 63).

The last study to date, made by E. Shee Twohig, follows the Knowth discoveries (Eogan 1998). The archaeologist synthesizes the various evolutions of the parietal art of the tombs of the Boyne valley in three main phases (Shee Twohig 2000). In this model, the first phase of carving appears on the satellite tombs and on the stones reused in the large central tombs and is characterized in particular by the recurrence of chevrons and spirals. The second phase corresponds to the geometrical carvings occurring in the major tombs located at the center of the necropolises. Lastly, the final phase is characterized by the visual art defined by M. O'Sullivan and the realization of diffuse picking.

2.3. The interpretations of passage tomb art

This third and last approach, which marked the study of passage tomb art around the Irish Sea, is certainly the most delicate. The objective of this chapter is above all to present in a synthetic way the various hypotheses proposed about the origin, meaning or function of these engravings. An epistemological analysis will then be privileged instead of a critical analysis.

In the 19th and 20th centuries, three main interpretations has been proposed about Irish passage tomb art. The first consists in seeing in these engravings the representations of human faces, the second regards them as the vestiges of an « astronomical science » and, finally, the most recent interpretation describes the geometrical signs as the representation of visions obtained during altered states of consciousness. Before approaching these three themes, it is interesting to see how the very idea of interpretation appeared and was discussed from the end of the 19th century to the present day.

2.3.1. Symbols or ornament ? Questionings about the possibility of a meaning

As far back as the first descriptions of carvings appeared an interrogation: are they figurations, symbols or simple decorations ? From the very start of the 19th century a questioning appeared about the existence or not of a signification for these engraved motifs. For some they are symbols whereas for others they are only decorations designed for an aesthetic goal and thus devoid of significance.

The first authors, in the end of the 18th century, interpreted certain carvings in Newgrange as Phoenician inscriptions (Pownall 1773 ; Vallancey 1784), thus taking part in the theory of an Eastern origin of the megalithism (Reinach 1893). This interpretation was however soon criticized (Hoare 1807 : 256) but then remained the question of a possible interpretation.

In 1847, W. Wilde stressed this problem outstandingly well: « The question may well be asked : what was their purpose ; are they mere ornamental carvings or are they inscriptions from which the history of this monument, or whatever it was originally intended for, might be learned ? Are they ideographic, or hierographic, in the strict sense of that word, that is, sacred carvings ? » (Wilde 1847 : 179). According to the author's opinion, these carving carry a meaning related to the funerary and sacred character of the tombs in which they appear. Nevertheless, W. Wilde reminded that any interpretation remains very problematic given the lack of knowledge about these monuments (p.180).

A few years later, J. Simpson pronounced himself in favour of a decorative function while he admitted a « possibly religious character » (Simpson 1864 : 102-105). W. Wakeman also mentioned the problem of interpretation but without seeking to take sides, this appearing to him impossible: « no key to their meaning has as yet been discovered. They [the carvings] may be symbolic, ideographic, or simply intended as ornament » (Wakeman 1881 : 545).

The question was then addressed by G. Coffey in its important work about the « origins of Prehistoric ornament in Ireland » (Coffey 1894, 1895a, 1895b, 1896a). As indicated by the title, the author interpreted the geometrical motifs of passage tombs as decorative but with a nuance. Indeed, although conceived like decorations, these engravings may have originally a symbolic function, disappearing during their evolution and definitively lost at the time of their use in Ireland. Coffey specifies that the carvings at Newgrange « simply represent the style of decoration of the period, and their explanation is to be sough in that direction. It is possible that some of the figures were in their origin symbolical ; but we must distinguish between essential meaning and constructive meaning – between meaning inseparable from the figure, and meaning to be determined by particular use » (Coffey 1892 : 22).

For W. Frazer, the question of a possible interpretation has no really sense in view of the antiquity of the carvings. However, he also pronounced himself in favour of a decorative function: « It appears to me useless to attempt any satisfactory explanation of these hidden meanings, if such there be, in the present state of our knowledge, and it is preferable to regard them as decorative and ornamental tracings » (Frazer 1893 : 296).

This difficulty in finding a possible interpretation is also expressed in the book by R.A.S. Macalister on « Ireland in pre-celtic times ». The author invited to prudence about any symbolic interpretation but rightly acknowledged that one should not interpret as decorative any geometrical motif whose meaning is unknown : « While it would be absurd to read symbolism into every scratch on the surface of a pot, we must always be prepared for the possibility that marks which to us seem merely decorative were at one time capable of a more recondite explanation. The key to this explanation is however lost » (Macalister 1921 : 218).

For certain researchers of the 1960-1970s, passage tomb art around the Irish Sea may have the both functions, symbolical and decorative. At Barclodiad y Gawres, F. Lynch distinguished two types of carvings: those reflecting a « religious symbolism » and those whose goal was an « architectural embellishment » (Lynch 1967 : 12).

C. O'Kelly also proposed this duality for the Boyne carvings which, as a whole, had at the same time symbolical and decorative functions. While reconsidering G. Coffey's interpretations, she proposed her own vision of the phenomenon: « I feel it is much more likely that the symbolic element was originally the important one but that, as time went on and tomb-builders became more experienced and sophisticated, aesthetic considerations began to enter in, though perhaps never entirely overruling the symbolism, latent or otherwise » (O'Kelly 1973 : 362).

In M. Herity's work, this dualism is more ambiguous and the limit between the two functions is less clear. About passage tomb art of Ireland, the archaeologist said that « it was probably designed to fulfil magical ends », statement immediately qualified : « But, as with much abstract art, there is a constant tendency for the abstract motifs to be designed merely as decoration ; in many tombs it serves merely as a decorative adjunct of the architecture » (Herity 1974 : 91). Further, the thesis of a symbolism is well expressed : « It now seems clear that the ideals of these passage grave artists included the portrayal of magical symbols » (p. 103), but then dismissed again: « the character of these passage grave symbols tends towards the abstract or the merely decorative » (p. 106). M. Herity thus were not really decided about this difficult question: symbolism and ornament are two hypotheses he accepted without specifying their respective limits.

The question of the aesthetic or symbolic function of passage tomb art was not really addressed in the works of E. Shee Twohig, more concentrated on a formal analysis of carvings. However the archaeologist pointed out the difficulties of interpretations of these carvings: « It is quite impossible to interpret any of the geometric motifs satisfactorily. [...] The designs were almost certainly symbolic in some way, and not merely decorative but the meaning of the symbols is now entirely lost to us » (Shee Twohig 1981 : 120). Nevertheless, in the conclusion of her major book, E. Shee Twohig was in favour of an symbolic interpretation: « In general the geometric motifs seem likely to have had a specific meaning for those who carved them and possibly for those who saw them ; these motifs should therefore be regarded as symbols » (Shee Twohig 1981 : 134). One may however regret, as M. O'Sullivan pointed out (O'Sullivan 1981b), that E. Shee Twohig did not develop this point and did not argue more her position except through certain ambiguous expressions describing passage tomb art as « a magico-religious symbolism, guarding the tomb and their contents » (Shee Twohig 1981 : 140).

G. Eogan, about Knowth carvings and of Irish art in general, addressed the question and pronounced himself in favour of a symbolical function instead of an aesthetic one he regarded as secondary: « While we may use such terms as art and decoration, the precise function of the ornament is not known. […] Nevertheless, megalithic art does not appear to have been simply an aesthetic element associated with architecture, embellishing aspects of the interior or exterior of a tomb. […] It seems more likely that the designs were a form of religious symbolism, connected with a cult of the dead and having significance in that context » (Eogan 1986 : 146).

Most of the authors expressed themselves on the existence or the absence of a potential meaning and on the difficulties of interpretation. On the whole, only few archaeologists of the 19th century regarded these engravings exclusively as simple ornamentations with an aesthetic purpose. Indeed, the majority of the specialists of the two last centuries agree on a symbolic nature of the passage tomb art around the Irish Sea, symbols whose meanings did not reach our time.

If their meaning will remain certainly unknown for ever, the fascination that these geometrical signs generate will certainly be always present : « Who would not like to know what the artists were trying to express and what it all meant to those who were confronted with the finished work some five thousand years ago ? » (O'Sullivan 1989 : 138). Certain researchers went further in the research on the nature and function of Irish passge tomb art and proposed more or less built and argued interpretations. Three main theses gather these individual interpretations: the anthropomorph thesis, the astronomical thesis and the shamanic thesis.

2.3.2. Anthropomorphic motifs and cult of the « Mother Goddess »

Several funerary carvings of Ireland, Brittany, Paris basin and Iberia were interpreted as anthropomorphic representations, i.e. presenting schematic human forms: eyes, face, body. These carvings vary extremely in form and in their geographical and chronological distribution. However, the majority was seen like female representations related to a worship of the « mother Goddess », religion which would have been imported from the Aegean islands or from Middle East which would be the origin of megalithism. Today, these analyses have been reconsidered and the interpretation of certain figures as religious female or simply anthropomorphic representations have been called into question (Shee Twohig 1998a; Cassen 2000b, 2000c).

Passage tomb art around the Irish Sea is characterized by the geometry of its motifs and by the absence of realistic representations. Nevertheless, certain archaeologists saw human forms among the complex assemblage of spirals, lozenges, chevrons or circles which decorate the passage tombs of this region.

The first of these archaeologists is W. Borlase who, about two lozenges carved on a stone at Kiltiernay, wrote that they were « probably intended for human eyes » (Borlase 1897 : 220).

A few years later, the French J. Déchelette saw in certain motifs of Newgrange the representation of « schematic human masks[1] » (Déchelette 1912 : 35). Without mentioning any goddess, the author interpreted these carvings as being « originally the image of a tattooed woman, generally reduced to the only representation of the higher parts of her face[2] » (p. 42). The schematic faces retained by J. Déchelette consist of two spirals for the « eyes » and of several chevrons or lozenges to represent a « facial tattoo[3] ».

R.A.S. Macalister also proposed this interpretation which was then largely developed by abbé

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[1] « Masques humains schématiques ».
[2] « […] à l'origine l'image d'une femme tatouée, le plus souvent réduite à la seule représentation des parties supérieures de son visage ».
[3] « Tatouage facial ».

H. Breuil after his visit to Ireland in the early 1920s. The last, in his communication before the Prehistoric Society of East Anglia, gave more than thirty examples of « face motifs » amongst the Irish carvings. This is still the most important work in favour of the anthropomorph thesis to date (Breuil 1934).

E. Shee Twohig showed later that the drawings of H. Breuil were not always very objective, revealing faces where former and posterior records did not see any (Shee Twohig 1998a : fig. 79). This subjectivity was also denounced by O.G.S. Crawford, although he was himself in favour of the anthropomorphic thesis (Crawford 1957).

Nevertheless, the anthropomorphs of H. Breuil had a considerable influence on prehistorians during nearly forty years (Mahr 1937 : 354, 360; Macalister 1943; Piggott 1954 : 211-8; Hartnett 1957; Eogan 1967). In 1974, M. Herity described several anthropomorphs amongst Irish carvings. At Sess Kilgreen, he saw on the flagstone C6 a « big bestial human face » whose « curves are frankly feminine, almost steatopygous, in the style of the Gravettian Venuses of central Europe ». At Loughcrew U, a « owl-like face figure » is carved on orthostat C3 and, at Newgrange, he saw a human face made up from the double spiral on kerbstones K67. Finally, in Fourknocks, Dowth south, Barclodiad y Gawres and Seefin, M. Herity interpreted certain carvings based on lozenges and chevrons as « angular gods » (Herity 1974 : 106). Here again, these interpretations rest more on imagination than on a rigorous analysis.

Until 1957, these figures were simply described like anthropomorphic, sometimes female, but without more interpretative developments. It is with the work of O.G.S. Crawford, entitled *The Eye Goddess* , that the hypothesis of a « Mother Goddess » worship completed the anthropomorph interpretation for the British and Irish passage tomb art (Crawford 1957). This area was thus linked with the rest of Western Europe by the idea of a Neolithic worship of fertility, based on a supreme female divinity regarded as principle of life (Gimbutas 1989).

The anthropomorph thesis, associated with a « Mother Goddess » worship, was nevertheless criticized and even dismissed by certain authors. The first of them is A. Fleming who, in a paper entitled « The Myth of the Mother Goddess », showed that Middle and Final Neolithic art of western Europe does not present any evidence of a female worship, contrary to Upper Paleolithic with its « Venus ». The only exceptions he admitted are the sculptures called in « breasts pair » of the Paris basin gallery graves (Fleming 1969).

For Ireland more particularly, M. O'Kelly dismissed any anthropomorph interpretation, specifying with soundness that any human representation would have been easy to schematize without such useless abstraction. Thus, about carvings on orthostat L19 at Newgrange: « This particular panel is thought by some to be an anthropomorph, or face-motif, and some have gone so far as to call it the Eye or Mother-Goddess. Such interpretations, however, are best avoided. It is too easy for a modern sophisticated imagination to see faces or figures where neither were intended by those who carved the patterns. In many instances, the ability shown is such, that one must feel that if the carvers wanted to represent a person, animal or plant, they could have done so with little trouble » (O'Kelly 1970 : 535).

The latter opinion is shared by C. O'Kelly for whom « the mother goddess and eye goddess

interpretations are equally doubtful. Like so much in passage-graves studies in the past, they are a legacy of the alleged impact of the Aegean and the Near East on the structure and decoration of West European tombs » (O'Kelly 1973 : 361).

E. Shee Twohig first did not reject categorically the anthropomorph theory but she was very reserved about it (Shee Twohig 1981 : 121). Then, in 1998, she devoted a paper to the question of the Neolithic « Mother Goddess » in Western Europe. For Ireland, her conclusion is unambiguous: « Consideration of all evidence available shows that the "Mother Goddess" interpretation cannot be sustained in either the early/middle Neolithic art on the passage tombs and menhirs in Brittany or in the slightly later Irish passage tomb art » (Shee Twohig 1998a : 179).

However, the anthropomorph thesis was still recently proposed about Irish passage tomb art. Pointing out the analogy of certain Irish motifs with Breton angled tombs motifs, M. O'Sullivan assessed that « the old theory of anthropomorphism has to be resurrected » (O'Sullivan 1986 : 81). For the archaeologist, indeed, certain Irish figures are schematic anthropomorphic representations which, besides common graphism, share the same type of position in the tombs: « Certain designs in the Boyne Valley can be construed as schematic pseudo-human images. This interpretation could be dismissed as subjective bias were it not for the fact that the relevant designs occur consistently at significant structural junctions in the tombs » (O'Sullivan 1996 : 92).

The interpretation of M. O'Sullivan concerns certain carvings already described by preceding archaeologists, as orthostats L19 at Newgrange or C1 at Fourknocks, but also « new » anthropomorphic motifs on orthostats at Knowth (Or49 in the western tomb and Or69 in the eastern tomb) and at Knockroe (backstone of the western tomb). According to the archaeologist, the anthropomorphs in Ireland were not a local creation but came from the continental repertoire: « Regarding Ireland it is worth noting that the most convincing anthropomorphic designs appear to have seeped into the insular tradition as an exotic intrusion from Brittany and possibly Iberia » (O'Sullivan 1997 : 31).

Although criticizable, the interpretation proposed by M. O' Sullivan has the quality to be restricted to the graphic field, analyzing the form and the positioning of the motifs rather than the origin and the function of these motifs. There is no Mother Goddess nor deified ancestors here, the archaeologist only notes that these carvings are placed at symbolic positions within the monuments, marking the limit between the passage and the chamber.

If, in Western Europe, anthropomorphic representations are probable, as the « breasts » sculptures on gallery graves and rock-cut tombs in Paris bassin, or proven on ceraines steles (Le Déhus, Guernesey; Soto, Portugal; Rouergue), they remain, on the other hand, very dubious amongst passage tombs carvings in Ireland and Wales. If certain combinations of motifs look like schematic faces, was this the will of their authors? Iberian painted art, close to Irish art by the use of geometrical motifs, uses realistic designs to represent anthropomorphic figures (Bueno Ramirez & Balbin Behrmann 1996). Why Neolithic societies arround of the Irish Sea would have used such abstraction and ambiguity?

Analogy with Bretons anthropomorphs, proposed by M. O'Sullivan, remains problematic since these ones are very contestable. S. Cassen indeed showed how the anthropomorphisation of the abstract sign called « buckler » and its sexualisation as a female idol rests on pre-established models,

producing ambiguous conclusions out of phase with its graphic reality (Cassen 2000; 2000d).

In the Neolithic representations of Western Europe, human body, very rarely illustrated entirely, appears in very varied forms. The face present a graphic convention, generally made up from a T-shaped motif. This convention is visible on the anthropomorphic steles in the South of France (D'Anna *et al.* 1996) and in the Alps (Saulieu 2004) or in the rock-cut tombs and gallery graves of the Paris basin (Bailloud 1964; Tarrête 1996; Shee Twohig 1981). The T-shaped figure is also found in Iberia, with or without eyes, to represent schematic faces (Bueno Ramirez & Balbin Behrmann 1996). Certain carvings at Knowth are graphically close to these Iberian figures (kerbstones K40; orthostat 41 in the western tomb; left jambstone to the northern recess, eastern tomb). From my point of view, they are the only figures that could be claimed as anthropomorphic since they have this conventional graphical characteristic. But it is still very difficult to support such a fragile hypothesis.

The anthropomorph interpretation marked the research from the 1930s to the 1970s in Ireland. This theory, quite criticized, is currently dismissed by a part of the researchers (Shee Twohig 1998) whereas it remains probable for some (O'Sullivan 1996, 1997). Is this, as the statistical analyses, a tempting « refuge » for who seeks to interpret geometrical carvings?

2.3.3. Star motifs and astronomical worship

This model gathers various interpretations based on the form of radial motifs as well as on the orientation of certain passage tombs in the British Isles. Parietal signs and architecture would be thus evidences of astronomical considerations which would have been object of a worship and even of a « science » during the Neolithic.

The hypothesis of a worship or an astronomical science were especially proposed for megalithic architectures and it is only later that carvings on these monuments were integrated into the model. Thus, the Swedish archaeologist S. Nilsson interpreted the tumuli and megalithic enclosures of Western Europe like the vestiges of a worship devoted to the Phoenician solar god Baal. The circular motifs of Newgrange and Dowth would threrefore be the representations of the sun related to this worship (Nilsson 1843 : 143, quoted by Simpson 1864 : 82).

In 1865, V.G. Du Noyer and E.A. Conwell recorded cups and concentric circles on rock outcrops in county Meath. For both antiquaries, these motifs were certainly representations of constellations (*The Meath Herald*, Oct. 21, 1865).

J.R. Allen, in his book on « Celtic art », gave a similar reading of carvings at Newgrange, Dowth and Loughcrew: « The designs seem to be more symbolical than ornemental, and from the frequent occurence of star-and-wheel-shaped designs may have to do with sun-worship. » (Allen 1904 : 54).

As J. Déchelette (1912), who speaks about « solar signs[4] » at Newgrange, G. Coffey saw astronomical figures in the parietal art of the Boyne valley, in particular several « suns », objects of a worship widespread in all Europe (Coffey 1912 : 76, 77, 88-90).

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[4] « Signes solaires ».

Regarding passage tomb art, the theory remained however anecdotic until the publication in 1924 of a paper by G. Flom devoted to the « sun symbols » of Loughcrew. For the author, they were astral representations related to a solar worship: « These carvings in the cairns of central Ireland offer unmistakable evidence of a well-developed sun-cult as the central element in the religious worship of the time » (Flom 1924 : 143).

G. Flom distinguished eleven categories of symbols, representing the sun in different phases of its celestial progression. These symbols thus express two principal phases: a sun in the zenith, powerful and hot, and a sun declining on the horizon, less hot and appearing only partially. These two themes, according to the author, are related to a « dual cult, one to a god of fruitfulness and another to a death deity » (p. 158).

The astronomical interpretation of parietal carvings was then supported by architectural considerations. The excavations carried out at Newgrange revealed that the axis of the passage of the tomb was directed towards the horizon point where the sun rises at winter solstices (O'Kelly 1968). This kind of orientation was also noticed for other sites like the eastern tomb at Knowth (Eogan 1986) and Loughcrew T (Shee Twohig 1996), oriented towards the rising sun on equinoxes. Nothing proves that these orientations are deliberate and the majority of passage tombs do not present this feature (several are even directed towards north). However, for certain authors, the stars determined not only the architecture (Patrick 1974) but also the parietal representations: « The art is harmoniously integrated into the architecture of the mound, and it is this relationship that identifies the art as monumental and links it directly with astronomical considerations » (Brennan 1983 : 127). Thus M. Brennan proposed in 1983 an original model for passage tomb art. According to him, the carved motifs are cosmic representations (circle = heavenly body ; squarre = earth, ; spiral = sun cycles, etc.) and certain carved compositions are astronomical calendars. The latter, based on stars cycles, would have made it possible to manage the agricultural works (Brennan 1983).

The astronomical thesis, from the recognition of celestial bodies in carvings to the theories of an astronomical worship or science, gave rise to a rich literature which remains nevertheless on the fringe of the academic sphere (ex: Thomas N.L. 1988; O'Brien 1989, 1992; Stooke 1994; Saunders 2004; Garnett 2005).

As tempting it appears, this interpretation of the carvings and monuments is very difficult to support. Moreover, like anthropomorphic interpretation, astronomical interpretation explains only a part of passage tomb art. It is possible that the stars or the theme of the cycle were present in the Neolithic cosmology but the hypothesis of a science or an astronomical worship is very uncertain It seems indeed more probable than the nature of art and architecture was more symbolic than « scientific » (Powell 1994).

2.3.4. Altered states of consciousness, entoptic visions and shamanism

In the 1990s, a new interpretation was developed about the geometrical carvings of Atlantic passage tombs. By analogy with the pictorial representations of various people of South Africa

or Australia, certain anthropologists and archaeologists described European Neolithic motifs as representations of visions generated during altered states of consciousness. The conclusion of this model is that the geommetric motifs of Atlantic passage tomb art would have been related to shamanic rites, interpreted then like the main source of this art.

However, the link between shamanism and Neolithic funerary parietal art was not a completely new theory when the model developed and caused the polemic. As soon as 1885, A. Maître interprets the concentric figures of Gavrinis and Dowth as the work of « chiromancers », « *vates* or soothsayers working as sorcerers and doctors ». The archaeologist stresses that « a study of what was the divination in old times, if it is possible, would perhaps give us the secret of the significance of these figures which certainly had a meaning to the eyes of those who made them carve[5] » (Maître 1885: 2, 11).

Other precursors, the German anthropologists J. Eichmeier and D. Höfer compared in the early 1970s several artistic traditions of « primitive » societies and proposed, for the first time but without developing it, a new interpretation of the geometrical motifs of passage tomb art: these motifs would be derived from visual phenomena observed in altered states of consciousness (Eichmeier & Höfer 1974 : 151-60).

This model, called « neuropsychological », was then developed by J.D. Lewis-Williams, anthropologist from Johannesburg, in the study of Upper Paleolithic art (Lewis-Williams & Dowson 1988). A few years later, R. Bradley applied this model to the passage tomb art of Ireland and Brittany (Bradley 1989a). Since, this interpretation was largely developed, giving rise to many works (Sherrat 1991; Le Roux 1992 : 101; Lewis-William & Dowson 1993; Dronfield 1995a, 1995b, 1996a, 1996b).

The neuropsychological model proposes to see the origin of chamanic art in manifestations of the ocular and cerebral system. Following various starting factors, the shaman enters an altered state of consciousness and perception which is progressing in three phases. The first phase is characterized by intraocular phenomena, causing the vision of geometrical motifs: points, parallel lines, square, zigzags, chevrons, circles, spirals, radial lines. Geometrical carvings in passage tombs were thus interpreted as representations of the visions from this first phase of the model (Lewis-Williams & Dowson 1993 : 56).

R. Bradley compared South-African motifs (parallel lines, points and circles, chevrons and meandering lines, circles and concentric arcs, spirals) to Irish and Breton motifs and thus proposed the hypothesis of a chamanic origin of Irish and, in part, Atlantic passage tomb art (Bradley 1989a : 71-72).

J. Dronfield was interested in the various means possibly used by the Neolithic people to cause these entoptic visions and retained three main stimuli: absorption of hallucinogenic mushrooms, light flicker and certain serious migraines (Dronfield 1995b).

If similarities exist between passage tomb art and the intraocular geometrical motifs studied

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[5] « Une étude de ce qu'était la divination dans les temps anciens, si elle est possible, nous donnerait peut-être le secret de la signification de ces figures qui certainement ont eu un sens aux yeux de ceux qui les faisaient graver ».

above, one can however wonder about the reasons which pushed the Neolithic people to carve these vision on their monuments. For J.D. Lewis-Williams and T.A. Dowson, the presence of these carvings on the monuments is related to the exclusive monopoly the elites had on these tombs (Lewis-Williams and Dowson 1993 : 59). Indeed, there is no doubt that the monumental character of these funerary architectures show the will from a powerful elite to establish and express its power, as well inside a territory as within its own group (Renfrew 1976; Bradley 1989a; Shee Twohig 1990). The appropriation by these same elites of the shamanic visions and their interpretation would have thus contributed to preserve a distinct and dominant position within the social group. For J.D. Lewis-Williams and T.A. Dowson, these elites would have kept the monopoly of these chamanic practices and would have excluded the other social classes from them. They would have thus been the only ones to be able to come into contact with a « spiritual » world, unknown to the rest of the society, during ritual inside the monuments (Lewis-Williams and Dowson 1993 : 60).

Paradoxically and contrary to the others interpretations studied above, the neuropsychological model was proposed by researchers not specializing in Neolithic passage tomb art but generally working on different chronological or geographical fields. However, this interpretation was at first well greeted amongst the specialists who considered it interesting or even convincing (McMann 1994 : 539; Shee Twohig 1996 : 67, 69; O'Sullivan 1997b : 34; 1998 : 44). The theory, which was also and especially developed for the Upper Paleolithic art, is today very discussed (Demoule 1997 ; Shee Twohig 2000 : 90-1; Helvenston & Bahn 2002 ; Lorblanchet *et al.*. 2006). Indeed, the realization of such motifs in an altered state of consciousness is a difficult hypothesis to support. Moreover, trance is not a necessary element to shamanic practices (Beaune 1998). In simple terms, absolutely nothing proves the existence of shamans during the Irish Neolithic nor practices of this kind related to the collective tombs of this period.

From a graphic point of view, the entoptic visions hypothesis is tempting because it brings an explanation for the abstract and geommetric nature of Irish passage tombs signs. But the principal problem with this model is that it does not rest on any reliable elements except a simple analogy with a context distant in time and space. Moreover, this model fails in front of a precise analysis of the context of these funerary engravings since, as I will try to demonstrate, Irish passage tomb shows a controlled use of its geommetric motifs (organization in space) what excluded simple entoptic representations of uncontrolled visions. The order detected in the motifs organization assert more in favour of a symbolical value of these signs, arranged in order to produce a meaning and not in order to reproduce visual effects observed during trance or in order to cause these ones.

2.4. Conclusion : for a spatial analysis of the carvings

The archaeological research undertaken on the parietal art of the passage tombs located around the Irish Sea can be gathered in two great distinct sets. On one side are methodical works, focusing on the recording of the graphic forms and on their classification in types, styles and chronological periods, and on the other side are speculative research building interpretative models whose bases do not rest on any rigorous archaeological reasoning (anthropomorphs, astrology, shamanism).

Between the first approach, concentrated on the formal aspects of the signs, and the second, mainly based on imagination, is a hiatus. Between the analysis of the forms and their interpretation, a space analysis of the engraved figures is missing. A study of the relations between the signs and space is necessary to understand the structure of the parietal art and any interpretational research cannot avoid it.

Although certain archaeologists were interested in the relations between art and architecture (see parts 5.11 and 6.1), this research orientation remains very little developed and it is on this one that this PhD dissertation concentrates. The following chapter proposes a new inventory of the elementary forms of Irish parietal art. This inventory is not an end in itself but the starting point of a spatial analysis. Before focusing on the spatial organization of the signs it is indeed necessary to define about which signs we talk, what are their principal forms and variation.

Part two

The iconographic repertoire of passage tomb art

Chapter 3
The signs : forms and variations of a graphic « vocabulary »

The aim of this chapter is to establish an exhaustive corpus of the various graphic units in passage tomb art around the Irish Sea. These graphic units are called « signs » rather than « motifs » and this choice has two reasons. Firstly, a motif has mostly an ornamental function whereas a sign has a certain value or a certain significance. Secondly, the term « motif » is ambiguous because it indicates a single graphical unit as well as several identical or distinct units making a whole ; but then, we will make here the distinction between the elementary units (which constitutes a graphic « vocabulary ») and the constructions combining these units in space (thus forming a graphic « syntax » in parietal art). To sum up, « motif» has a too broad definition whereas the nature and the function of the « sign » are more precise and suit the object examined here.

By drawing up this corpus of the signs, a part of Irish passage tomb art is let aside. Indeed, all the funerary representations of the region are not composed exclusively of distinct signs. If the main part of the carved figures are recognizable and identifiable as signs, certain marks remain undetermined or uncompleted and avoid any classification. This is explained by a bad preservation of the carvings or by a deliberate choice from the Neolithic authors: can be quoted as examples the carvings of the western tomb in the tumulus of Knowth or certain carvings in the monument of Knockroe, characterized by a strong stylization, that M. O'Sullivan defines as « plastic art ». This art indeed is not composed of traditional signs but of broad picked bands which fit the shapes of the stones (O'Sullivan 1986).

Lastly, the picking used to treat the carved representations was not always applied to produce linear figures. On certain stones, the picking covers large areas in order to erase late carvings or to correct the stone irregularities. However, G. Eogan gives a symbolic value to some of these « diffuse picking » which he regards as a proper art and not only as a technical work on the stones (Eogan & Aboud 1990).

In the following corpus, the signs are classified in two main categories: circular signs and angular signs. This distinction, far from being new, is justified by a simple convenience of classification and one should not see it as an opposition between two distinct families. Actually, each sign forms a distinct category, with its main forms and its variations. After the analysis of the circular and angular signs, a particular examination will be made on the meandering sign which is characterized by several graphic and semiological ambiguities. Lastly, the last point of this chapter will be on the rare signs of Irish passage tomb art.

3.1. The circular and semicircular signs

3.1.1. <u>Dots and cupmarks</u>

These are the simplest and in addition the most widespread signs in parietal and rock art through all continents (Abélanet 1986). In the monuments around the Irish Sea, it appears on 28% of the carved stones. Dots and cupmarks are generally distinguished according to the depth of the picking. E. Shee Twohig chose as conventional limit a depth of two centimetres beyond which a picked dot should be described as a cup (Shee Twohig 1981). This distinction between dot and cup can be seen as anecdotic but it is actually important since they are two different objects, made with two different techniques. A dot, large or small, is a sign deployed in two dimensions (surface) ; the techniques used is carving since the interior of the sign is materialized by a homogeneous layer of stone picked off. On the other hand, a cup forms a small hemispherical cavity and constitutes a sign made in three dimensions (volume). The technique of realization is sculpture.

Very simple signs, dots and cupmarks present no variations except their different dimensions. A terminological ambiguity may however arise when a dot covers an important surface, equivalent to that of a carved circle (e.g. DhN.C19 ; KhW.Or39 ; Ng.K13b). This dot must thus be requalified of full circle or disc. In certain cases, a quadrangular sign with round angles has the same ambiguity (e.g. Kh.K15; Kh14.Or8; LcI.C13e). As another consequence of their simplicity, dots and cups take part in the composition of complex signs like certain radiate signs or concentric circles of which they often constitute the center or sometimes mark the contour.

3.1.2. <u>The circular signs</u>

Also a very simple and universal form, the circle is a very common sign among the carved representations around the Irish Sea (282 stones, i.e. 45% of the carved stones). This sign has several variations: the simplest ones consists of a single ring and the most complex combines several concentric circles, parallel arcs and a central cup (figure 3.1). One can wonder whether the complex models belong to the category of the signs or to the category of signs combinations. It seemed however better to classify them among the first category since the general form of the figure is the same than the basic sign. In other words, a figure composed of a central cup surrounded by concentric circles and parallel arcs has a circular form, whatever its complexity. It has then to be regarded as a circular sign. Circles take often part in the composition of radiate signs (center or contour) ; those circles are not included in the present category but in the radiate signs category.

Carvings of circles are not always perfectly made and some of them have an oval contour. Other are close to a square or a rectangle shape (Dh.K51b, Dh.K52, Kh.K75, Kh.K95, Kh14.Or8, LcU.C2w). Lastly, it is frequent to observe unclosed circles. The two ends of the carved line, very close, converge so that one cannot talk here about arc for the form of these figure is closer to the circle (KrW.RS, Kh.K4, Kh.K5, Kh.K11, Kh.K16, Kh.K23, Kh.K72, KhE.Co54-1, LcT.L2, LcV.C8).

3.1.3. <u>The spirals</u>

Emblematic sign of Irish passage tomb art, the spiral is however not a very common figure since it appears on only 153 stones (figure 3.3), i.e. 24% of the carved stones. It is thus the sixth more represented sign in the parietal art around the Irish Sea. The spiral has several forms which one can classify in three categories: simple spirals, double spirals and triple spirals (figure 3.2).

In the first category, simple spirals, are :
- simple spirals (1a), which are the great majority (50%),
- simple spirals with arcs (1b),
- spirals with angular shapes (1c),
- « crook » spirals (1d). This sign, generally associated to Bronze Age (Cloverhill, Millin Bay) can also be seen on several Neolithic monuments (Knowth 14, Looughcrew T, Newgrange, Rathkenny).
- Spirals whose inner end (1f) or outer end (1g ; 1e) has a meandering shape. This particular types are examined in the chapter on the meandering sign (chapter 3.3).

The double spirals are :
- spirals with a double line (2a), i.e. single spirals made by two parallel lines. In some cases, the end of both lines joins in the center of the spiral.
- S-shaped double spirals (2b)
- « horned » spirals (2c) (Frodsham 1996 : 101-3). The line linking the two opposed spirals is rectilinear or has a « V » shape so as to fit between the two signs. This type of spiral, much rare in Ireland, is more distributed in Great-Britain (Barcldiad y Gawres, the Calderstones, Temple Wood) and in Orkney (Eday Manse, Pierowall).

The triple spirals are :
- spirals made with a triple line (3a). Only one example has been recognised on orthostat C5 in Loughcrew tomb I.
- triskele-shaped spirals (3b). This type is only known at Newgrange where it appears on kerbstone 1 and on chamber orthostat C10.

3.1.4. <u>The arcs</u>

The arc is the most represented sign (322 stones, i.e. 50,8% of the carved stones). This large distribution is partly explained by the frequent carvings of arcs around concentric circles or spirals. Arcs are indeed often combined with the contour of these circular signs in order to « extend » out the repetition of the curved parallel lines. This type of arcs must then be considered as parts of circular signs and can not be examined independently. It is better to distinguish them from independent arcs, which do not take part in the composition of another sign. These independent arcs are carved on 165 stones (the half of the stones bearing an arc sign) and these

ones only are examined here (figure 3.6).

The arc sign is composed of a single arc or of several parallel arcs. The diversity of the sign depends mainly on the degree of opening of the curve and its both ends : some arcs are very splayed while others, whose ends nearly meet, are close to a circulare shape (tables). Four main shapes can be distinguished in this very varied corpus (figure 3.4):
- simple arcs whose ends are running towards two opposite directions (1a and 1b),
- semicircle or arcs whose ends are two parallel lines (2a and 2b). This type is the most common of the arcs category. It also has an angular variation composed of three segments at right angles (2c and 2d).
- arcs whose ends converge (3a and 3b). One variation of this type is a crescentiform composed of two parallel arcs joined by the ends (3c). On the kerbstone 86 of Knowth tumulus, four crescentiform signs, organised in two opposed pairs, are made with a picking covering the whole surface of the motif and not by a picked outer line.
- signs shaped in a lateraly stretched U (4a and 4b). This sign is carved almost exclusively in Knowth main tumulus, particularly on kerbstones. Outside Knowth, only the stone M2 from Millin Bay tomb has a similar sign.

The arc, contrary to the cup, the circle or the spiral, is a semicircular sign. This characteristic implies that arcs carved on vertical surfaces show, intentionaly or not, an orientation in space. By looking at this orientation, it is interesting to notice that arc signs are mainly open towards the ground (50,6%). Only 20% are open towards the top and 15% are open toward the side of the stone (figure 3.5).

3.1.5. The radiate circular signs

The category of the radiate circular signs gathers a very varied range of motifs who share a common graphical structure : a central element from which radiate several identical elements. Althought these signs are emblematic of Irish passage tomb art (cf. E. Shee Twohig's « Loughcrew style »), they are rare among the carved representations since they appear on 48 stones only, i.e. 7,6% of the carved stones (figure 3.8). A sign nevertheless diversified as testify the 20 different forms that has been identified (figure). Two main categories are distinguished according to the form of the radiating elements (figure 3.7): straight lines (types 1 to 6) or arcs (types 7 to 10).

The first category (radiating straight lines) is composed of six different types :
- Type 1 gathers radiate signs whose center is missing or formed by the intersection of the radials of the motif. This simple form (1a) is sometimes surrounded by one or several concentric circles (1b and 1c). On orthostat C12 in the southern tomb of Dowth, a radiating lines motif is framed in a quadrangular design ; this is the only exception to the circular form that present systematically the radiate signs.
- In type 2 are the signs whose center is made by a dot and whose radials are straight lines. This basic figure (2a) can be surrounded by one or several circles (2b and 2c). On the

sillstone marking the entrance to the final recess of the tomb T at Loughcrew, a radiate sign, composed of a central cup and radiating lines in a circle, has also cups between radial lines (2d). In the same tomb, on orthostat L1, a similar sign present a remarkable complexity : this is a motif composed of five concentric circles. Between the two outer ones are radiating lines and dots alternately.

- Type 3 gathers the signs whose center is made by a dot surrounded by a circle and whose radials are straight lines. This basic figure (3a) is surrounded by a circle on kerbstone 51 at Dowth (3b).
- Type 4 is represented by the sign carved on orthostat 11 in Newgrange tomb K. The motif is composed a central dot surrounded by two concentric circles and presents radiating lines from the outermost circle.
- In type 5 are the radiate signs formed of a central circle from which radiate straight lines. On orthostat L4 in Loughcrew tomb S, the sign is surrounded by a circle.
- Type 6 is close to type 5 but here the center of the signs are made by two concentric circles.

The second category is composed of the signs whose radiating elements are U-shaped arcs open towards the center of the sign. In this category are four types :
- Type 7 is represented by one of the radiate signs on orthostat C8 in Loughcrew tomb T. It is composed of arcs radiating from a center which is not marked out by any carving.
- Type 8, represented on orthostat L4 in Loughcrew tomb S, consists of a central dot from which radiate several arcs.
- Type 9 gathers the signs composed of a dot surrounded by a circle from which radiate several arcs. On orthostat C8 in Loughcrew tomb T, one of this sign is surrounded by a circle.
- Type 10 represents the signs made of a single circle from which are radiating arcs.

3.1.6. <u>The radiate semicircular signs</u>

This category of sign is close to the previous one with which it shares characteristic radiating elements. Nevertheless, these semicircular radiate signs constitute a separate category with its own specificities. They should not be simply considered as « truncated » variations of the category examined above. Five different types can be distinguished (figures 3.9 and 3.10):
- Type 1 concerns the simplest signs, made of simple radiating straight lines (1a), sometimes surrounded by an arc (1b).
- Type 2 gathers the designs composed of a central dot and radiating straight lines. This sign can be seen alone (2a) or surrounded by an arc (2b). Type 2c gathers 15 signs carved on 10 stones (figure). These signs have in common one or several lines of dots which make an arc arround them. Besides this common characteristic, the motif shows a great diversity in the representation of its center. This one, indeed, is marked out by a single dot (Kh.K7, Kh.K15, Kh14.Or8, LcI.C13), by a point surrounded by a circle (Ng.K6, Ng.K88, Ng.RS1, LcI.C13, LcS.C2) or by a dot adjacent to a circular design (LcX1) or a semicircular design

(Ng.RB). Moreover, a certain diversity can be observed in the radiating lines (alternations line/dot/line on LcX1 ; elongated triangles on Kh.K15) as well as in the shape of the outer dots (circles and squares on Kh.K15).

- Type 3, represented by one of the radiate signs on Newgrange kerbstone 88, consists of a single circle from which radiate straight lines.
- Type 4 gathers several radiate signs whose center is made of a single arc (4a) or several boxed arcs (4b). Type 4c, buit on several boxed arcs, presents a particularity at the end of its radials, these ones ending by a rounded thickening. This original design is carved on an isolated stone discovered in Dún Loaghaire and on orthostat C9 in Knockmany passage tomb. It is noteworthy that L. Gógan, in his description of the Dún Loaghaire stone, noted the analogy between the radiate sign on the stone and the one on the Knockmany orthostat, signs interpreted by the author as a helmet with its crest (Gógan 1932 : 217).
- Type 5 represent the signs composed of several boxed arcs with radiate lines carved between two adjoining arcs.

3.2. The angular signs

3.2.1. <u>The chevrons</u>

The chevron signs are relatively in great number in Irish passage tomb art. Indeed, 170 stones present the motif, i.e. 26,8% of the carved stones (figure 3.13). The sign is not complex from a graphic point of view and three main shapes can be distinguished (figure 3.12):

- Type 1 gathers the single chevrons, in a « V » shape, made by a single line (1a) or by a double (1b), triple (1c) and sometimes a quadruple (1d) line. These motifs made by multiple lines must not be mistaken for combinations associating several chevron in a line (see chapter 4.3.3). Here the shape is the one of a single chevron, made by a multiple line.
- Type 2 represents the signs composed of a range of several inverted chevron in a « sawtooth » shape. This zigzag sign is made by a single line (2a), a double line (2b) and more rarely a triple line (2c). Here again one must distinguish these two last motifs to combinations of several parallel chevrons (see also chapter 4.3.3), these combinations are not a single sign with its characteristic contour but several signs associated and covering a certain surface.
- Type 3 gathers chevron signs whose some angles are particularly rounded. Here are not concerned the chevron whose angularity is not well marked out (sometimes because of the small size of the sign whose picking can not be very accurate). Are concerned here the chevrons whose certain angles are clearly (and probably intentionally) rounded, producing then a strong ambiguity on the graphic nature of the sign : this one shows indeed an angular shape and a curvilinear shape, half-chevron, half-meandering. This particularity will be examined in the next chapter which focuses on the different graphic ambiguities of the meandering sign (chapter 3.3).

3.2.2. <u>The triangular signs</u>

Triangular signs are quite rare. They appear on 47 carved stones only, that is to say 7,4% of the whole corpus (figure 3.15). Before to examine the different graphical shapes of the triangular sign, it seems important to clear up certain ambiguities. Are considered in this category independant triangular signs, i.e. not taking part in the composition of another sign. Indeed, a great number of guadrangular signs are subdivided into two or four triangular parts (O'Sullivan 2006 : 658). It is more coherent to consider this triangular figures as component parts of a sign and not as signs themself.

Another ambiguity appear when a zigzag rests on a straight line : the spaces inside the angles of the zizag are then « closed » and a range of triangles is created. It seemed better to consider this figures as genuine triangles only when the interior of the motif is picked in order to emphasize clearly on the triangular shape in the zigzag composition.

Finally, the last problem concerns the compositions formed of several triangles in a « chessboard » arrangement: in these compositions, solid triangles are alternated with empty triangular shapes. Should we consider these « empty » triangles as signs or just as empty spaces ? The question is uneasy to answer because it is linked to the question of the Neolithic authors' intentions : did they want to represent two opposed and imbricated sets of solid and empty triangles ? This question cannot be answered then it is more advisable to consider only picked triangles and to not decide on the empty triangles. This choice was also adopted in the examination of squares arranged in a chessboard composition.

Two figures are used to represent a triangular sign (figure 3.14) : solidly picked triangle (type 1) and contour picked triangle (type 2). Noteworthy, type 1 outnumber type 2 and it seems impossible to find the reasons of this graphical preference. Strangely, no other variations (boxed triangles, subdivided triangles, etc.) was recorded, and this fact distinguishes this category to the quadrangular one which is far more rich and diversified.

3.2.3. <u>The quadrangular signs</u>

The quadrangular signs appear on 19% of the carved stones examined in this work (figure 3.17). Its orientation shows a great constancy since it always rests on its corner and not on its side. The sign carved on Knowth kerbstone 75 rests on its side and constitutes then the only exception of the rule.

The shapes of the quadrangular sign are quite diversified and 15 types has been identified (figure 3.16) :
-   Type 1 represents quadrilaterals marked out by an outline picking. In this category are single squares (1a) and more complex motifs composed of two (1b), three (1c) and four boxed squares (1d). At Knowth, a similar motif composed of six squares is carved on orthostat 45 in the eastern tomb of the main tumulus (1e) while seven boxed squares were recorded on stone A in tomb 4 (1f).

- Type 2 corresponds to quadrangular figures divided in two equal parts by a line linking two opposite angles. The motif is then composed of two empty triangles (2a) or of one empty triangle opposed to a solid triangle (2b). The division line is as well horizontal (8 signs) as vertical (9 signs).
- Type 3 gathers quadrangular signs subdivided in four equal parts by two perpendicular lines, each one linking two opposite angles. The four inner parts, triangular in shape, can be let empty (3a) ; in other cases, two diagonally opposite quarters can be solidly picked (3b). This last motif is sometimes surrounded by a quadrangular design (3c).
- Type 4 gathers the signs composed of a quadrangular motif whose inner surface is solidly picked. This basic motif (4a) is sometimes surrounded by a square (4b) or by two boxed squares (4c). On the first carved sillstone inside Newgrange tomb K, a solid square is surrounded by not less than four boxed squares (4d).

Through this typological description, a great diversity can be observed in the representation of the quadrangular sign. Nevertheless, a great unity lies in the common geometric shape shared by all of these motifs : they are all squares (or lozenges), i.e. quadrangular figures whose four sides are equal. Indeed, no other quadrilateral figure has been recorded : no trapezium nor rectangle. The carving on the lower part of Knowth kerbstone 10 was a time interpreted as an elongated rectangle ; but this interpretation was then rejected because of the lack of junction between the upper horizontal line and the lower elongated « U » motif.

3.2.4. <u>The scalariform signs</u>

This category is not much represented in the passage tomb art around the Irish Sea (56 stones, 8,8% of the carved stones – figure 3.19). It gathers the signs composed of at least three parallel lines, sometimes linked together by a perpendicular line. The basic element of these signs is a range of short parallel lines, that is why we have chosen the term « scalariform » (ladder-shaped) to refer to them. In previous studies, these signs are called « offset motifs » or « parallel lines » (Shee Twohig 1981).

Four types constitute the category of the scalariform signs (figure 3.18):
- Type 1 corresponds to the signs just composed of a range of parallel lines (1a), sometimes surrounded by an oval figure (1b).
- Type 2 corresponds to the signs composed of two parallel ranges of parallel lines separated from each other by a small linear space (2a). This motif is sometimes surrounded by an oval figure (2b).
- Type 3 gathers the signs formes of parallel lines linked together by a perpendicular line which cut them accross the middle (3a). On orthostat 38 in the western tomb of Knowth tumulus, two perpendicular lines (and not just one) are carved accross the middle of the sign. This is the only known exception in that category. Certain type 3 motifs are also surrounded in a oval shape (3b). On the back face of Newgrange kerbstone 13, a triangle pointed towards the ground surrounded a scalariform sign of type 3a.

- Type 4 represents the signs composed of a range of parallel line whose end are linked together by a perpendicular line. Contrary to the other scalariform signs, this motif is never surrounded in an oval figure.

3.3. Graphic forms and dualities of the meandering sign

The meandering sign consists simply of a line showing at least two successive opposite curves. From a graphical point of view, this is the most « free » sign, i.e. it has few graphic constraints to respect to preserve its characteristics. Consequently, this « freedom » allows a great diversity in the proportions, the orientation and the graphic forms of the motif. Whereas certain sinuous lines of small size present only two curves, others have several tens of curves and reach a two meters length (ex: Kh.K14 or Kh.K52). In the same way, the axis of the meandering signs is not systematically rectilinear : it is often curved, sometimes even almost circular, in order to surround other signs (see chapter 4.4).

The meandering sign is also characterized by various composite types that make it a particular sign in the Irish repertoire. These hybrid forms are as well a meandering sign as a chevron or a spiral for example. In addition, the meandering sign shows a duality of interpretation : it can be a geometric figure and a naturalistic representation. These various dualities constitute the graphic richness of this particular sign ; it is thus on those dualities that the present study focuses.

This chapter, like the previous ones on the other signs, lies mainly in a descriptive approach : the objective here is to observe and record the composite forms marked by the lines and the ends of certain meandering signs. However, at the end of this study, the question of the nature of the sign will be put since the duality of the motif forms induces an other interpretation than the simple geometric figure.

3.3.1. The dualities relating to the form of the line

The meandering sign is characterized by a sinuous line showing several successive curves. On certain meandering signs of Irish passage tomb art, a part of the line has a different layout such as an angular shape (chevron or crenellated) or a spiral shape, thus creating a confusion between two signs of different graphic nature.

a. *Assimilation with chevron* : on 37 stones mainly from the great necropolises of the Boyne Valley (Knowth, Newgrange, Dowth), some carved lines show sinuous curves as well as angles in a sawtooth shape (figure 3.20). This confusion between meandering sign and chevron can be explained by the strong graphic proximity of these two signs (O'Sullivan 2006 : 657). Nevertheless, in a great number of cases, this duality seems to have been deliberate.

b. *Assimilation with a crenellated line* : at Knowth, three meandering signs show a crenellated part : two signs on orthostat 8 in tomb 14 and one sign on kerbstone 93 of the main

tumulus. The same duality can be observed on the meandering sign of the carved roofstone in Carnanmore passage tomb (figure 3.20).

c. *Assimilation with spiral* : there are two types of confusions between meandering sign and spiral. The first one consist of a spiral whose outer end becomes a meandering line (figure 3.21). Such carvings are known in Ireland (Knowth, Dowth and Knockroe) as well as in Wales on the carved stele in Bryn Celli Ddu site. In another context, such composite carvings are also known on a carved outcrop at Coilsfield in Scotland (Morris 1981). This latter example is original since spirals and meandering lines are very rare in British rock art (Beckensall 1999). The second type of confusion consists of a spiral whose inner end is a meandering line (figure 3.22). Four signs show this particularity : two very similar carvings on Dowth kerbstones 12 and 14, one carved sign on orthostat R2 in Loughcrew tomb F and one carved sign on Knowth kerbstone 73.

In addition, certain meandering signs consist of a main line to which is added a second line, shorter and which forms a sort of appendage (figure 3.23). This one is located towards the end of the motif (Ng.K9, Ng.K51, Ng.Co3/R4-5, LcH.K8, LcT.C3, Kh.K118) or near its middle (Ng.RscellE, Kh.K14, Kh.K17). On Knowth kerbstone 118, the appendage has a meandering or chevron layout : it could be two superimposed signs and not one only.

3.3.2. <u>The dualities relating to the end of the sign</u>

Many meandering signs are distinguished by the different forms of one of their end. This end can be a circular design (dot, circle, « 8 »-shaped figure), an angular design (angle, triangle and square) or a V-shaped figure.

a. *The rounded and circular ends* : on twelve stones, one of the end of the meandering signs is thickened in a rounded shape (figure 3.25). On five other stones, a circle ends meandering signs (figure 3.26). On Bryn Celli Ddu stele and on Knockroe kerbstone 31, this circular shape maybe results from a loop made by the end of the line. On one of the stones discovered in Dún Loaghaire, the drawings by L. Gógan show a meandering line ended by a circle surrounding a dot. Lastly, on orthostat 8 in Knowth tomb 14, a meandering sign ends in a circular figure which has a small excrescence.

b. *The 8-shaped ends* : two meandering signs show in their end an original figure composed of an oval motif on which rests an arc, giving to the composition the shape of an « 8 » (figure 3.27). These two original meandering signs are respectively on the edge of orthostat C14 in Loughcrew tomb H and on orthostat C3 in Newgrange passage tomb. In chapter 6, the relations between these two signs and the architectural space will be examined.

c. *The ends in distinct angle* : on seven stones, meandering signs show an end that is clearly distinguished from the rest of the motif by an angle and a rectilinear line (figure 3.28).

d. *The quadrangular and triangular ends* : at Knowth, on orthostat 8 in tomb 14 and on orthostat A in tomb 4, three meandering signs are ended by a triangular motif whose pointed end is on the opposite side (figure 3.29). Another sign on the first orthostat above show a quadrangular shape, linked by an angle to the meandering line.

e. *The V-shaped ends* : two meandering signs are ended by a V-shaped figure. One of these signs is carved on the top edge of Knowth kerbstone 94 ; the other is carved on Newgrange orthostat C3 (figure 3.30).

3.3.3. <u>The dualities relating to the representation : meandering sign, serpentiform or serpent ?</u>

This study on the meandering sign is ending by a question : is this sign just a geometrical figure or is it an abstract naturalistic representation ? Amongst these many meandering signs carved on passage tombs walls, is there representations of snakes ? Only few archaeologists broached this quite delicate subject. In the literature on Irish passage tomb art the question is rarely raised and the hypothesis of a naturalistic representation is generally dismissed (Shee Twohig 1981).

Rare are the authors who, clearly or even just allusively, were in favour of such an hypothesis. In 1699, the « discoverer » of Newgrange, E. Llhwyd, describes the spirals on the entrance stone of the tomb as « snakes encircled, but without head[1] » (quoted by Wilde 1847 : 168). About a stone carved with meandering signs, used as a lintel in an underground chamber in Barns of Airlie (Scotland), V.G. Childe and A. Graham notice that « the "heads" of all the figures are represented by large round cup-marks, the serpent's bodies by gutters, shallow and narrower but still executed in the "Bronze Age" pecking technique ». For the authors, these carvings are true representations of snakes: « […] neither in the Bronze nor Iron Age has such a group of conventionalised zoomorphic carvings been previously recognised in Scotland. » (Childe & Graham 1943 : 38).

In 1973, in her study on the passage tomb art of the Boyne Valley, C. O'Kelly is more ambiguous. In the signs description, the short part about the « serpentiforms » mentions cup « heads » at the end of some motifs, term written in inverted commas by the author who thus avoids ruling on the figurative nature of these carvings (O'Kelly 1973 : 366). Lastly, the same year, H.N. Savory interprets certain Iberian, Breton, Welsh and Irish signs as representations of snakes. This interpretation is based on the thicker end of certain meandering signs which would be thus the representation of the reptile head. Only one Irish example is mentioned : « Such representations are rare in the abundant megalithic art of Ireland, but one clear example of a headed serpentiform exists on the outer face of upright no. 8 in tomb 2 [today tomb 14] of the famous passage grave group at Knowth, Co. Meath. St. Patrick, then, was not successful in banishing this particular snake from Ireland » (Savory 1973 : 81).

Thus the question deserves to be ask. Amongst the meandering signs, does it exist representations of snakes ? It seems obvious that one cannot decide in favour or in defavour of this hypothesis. Most important here is not the answer but the reflexion which the question induces. Our aim is not thus to rule definitively on the existence of snakes in Irish passage tomb art but to put together the various arguments in favour and against the hypothesis, and to confront them.

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[1] « The entry into this cave is at bottom, and before it we found a great flat stone, like a large tomb-stone, placed edgeways, having on the outside certain barbarous carvings, like snakes encircled, but without head. »

What are the arguments in favour of a realistic representation ?

- *The graphic form of certain carvings.* Around the Irish Sea, certain meandering signs have an end that can be interpreted as a snake head (dot, circle, square, triangle) or like horns (double end), the horned snake being a common topic represented as far back as Ancient Europe (Beigbeder 1969 : 383). In addition, the axis of certain meandering signs is not rectilinear, thus these signs can hardly be taken for simple geometrical motifs since such motifs are precisely characterized by a repetitive regularity specific to their abstract nature. For the same reason, this type of signs cannot be mistaken for representations of liquid waves (Cassen 2000 : 721).

- *The other Neolithic funerary contexts in Atlantic Europe.* The Neolithic parietal art of Brittany and Iberia also has meandering signs, some of which are clearly identified as representations of snakes. In Brittany, the snakes carved on the Manio stele in Carnac or on Gavrinis orthostat 8 can be mentioned as examples (Bailloud *et al.* 1995 : 83). In the Iberian peninsula the representation of the reptile is well-known. P. Bueno Ramirez and R. de Balbín Behrmann made a study on the various graphic forms used to represent snakes. In addition to the exceptional realism of the snake carved on the Navalcán stele (Toledo), the authors recorded various shapes of head (cups, circles, double lines) as well as other characteristics which are also encountered in Ireland like the carvings of appendices or angular ends (Bueno Ramirez & Balbín Behrmann 1995). If snakes are attested representations in Breton and Iberian Neolithic tombs, it would not be surprising to find other examples in Irish tombs which share other signs with the continental contexts (chevrons, spirals, arcs, radiate circles).

- *A universal symbolism.* The representation of snakes in a funerary context is not surprising while the chthonian character of this animal is universal. On every continents and throughout all periods before Christianity, the snake is associated to the other world of which he is the guardian, animal acting as an intermediate between both opposite universes and whose history goes as far back as the creation of the world (Bridge-Humbert 1995). In addition, in the symbolism of the snake, it is frequent to see it associated with the symbol of the spiral and there also this is a universal association (Beigbeder 1969: 385-389). Can this explain the frequent association, described above, between meandering signs and spirals in Ireland ? In Saharan or Scandinavian rock art, this compositions in which snakes and spirals make one motif is also frequently encountered (Lhote 1976 ; David & Huard 1979 ; Burenhult 1980a).

What elements are against the hypothesis of the representation of the snake?

- *The biological absence of snakes in Ireland.* The reptile, during the postglacial era, reached the south of England but never extended further to north-west. No snake ever lived in the regions bordering the Irish Sea where are carved meandering lines.

- *The abstract nature of Irish signs.* Contrary to Breton and Iberian passage tomb art, Irish art is composed exclusively of abstract figures. The snake would be then the only realistic representation and the only exception in the repertoire.

- *The lack of undisputable details* that would allow to identify snakes with certainty, as the one

on the Navalcán stele.

The only « attested » Irish snakes are those who Saint Patrick drove out the island. This legend explaining the absence of the reptiles on the island drew my attention because it has the main elements of a model which is found in various parts of Europe. Saint Patrick lines up indeed among the saints fighting saurians, monstrous reptiles considered as the Christian representation of paganism but which often represents the remnants of mythical creatures existing before the christianization of Europe (Sergent 1997).

In Ireland, there are many mythological stories about fights opposing a hero and a serpent/dragon and in which the monstrous reptile, defeated, is sent into the sea or a lake (Mac Neill 1962), as are the snakes by the Irish evangelist... In Galicia, snakes are very present animals in the mythology. Saint James, as he was evangelizing the region, had also to face snakes which here are clearly identified as the symbols of the Galician original culture opposed to the new Christian culture (Mandianes 1997).

Does the Patrick legend take up certain elements of Pre-Christian Irish legends ? Or is it a symbolic tale opposing a new religion to an older culture ? As in Galicia, was the snake a strong Pre-Christian symbol whose origin could go as far back as the Neolithic period ? The hagiographic sources on the Irish saint are less precise on this question than are those on the Galician saint (Stalmans 2003). It seems however that the snakes legend is a late exogenic invention. Indeed, the first mention of this legend appears in the written works of two Norman hagiographers of the XIIth century. The story would have been created from an episode of of Saint Patrick life during which the evangelist do not face snakes but birds that he drives out with a bell (Mac Neill 1962 : 73-74; Ó hÓgáin 2006 : 421). The legend of the Irish snakes thus seems quite confused and would deserve a comprehensive work with comparative studies allowing to identify which elements belong to an old local background and which elements are medieval hagiographic inventions.

Duality is thus the first criterion which defines the meandering sign. A *graphic duality* first : the curves which make its layout are often angular or « change » into spiral. The end of certain motifs are thickened in a circular or polygonal figure. Finally a *semiological duality* : all these particular graphic forms induce a doubt about the exclusive abstract nature of the sign but do not show a sufficient realism to guarantee a zoomorphic interpretation.

3.4. Rare signs

Among the rich compositions which decorate the walls of passage tombs are rare representations which are different from the usual signs. It is known that all carvings are not composed only of signs and that there are also undetermined figures, broad picked bands fiting the shape of the stones (« plastic art », O'Sullivan 1986) or simple picking covering a specific zone of the stone (Eogan & Aboud 1990). Here will be examined not undetermined carvings but clearly identifiable signs which are very little represented since each of them are carved in two to eight individuals.

Six rare signs has been identified (figure 3.33):

- Sign 1 is composed of two parallel arcs joined by one of their end and between which are set several parallel lines laid perpendicularly to the arcs. On two of the three signs of the category, a line continue the figure after the common ends of the arcs. On Newgrange kerbstone 18, this line has a meandering layout.
- Sign 2 has a reverse trident shape whose left « leg » is shorter than the other. This sign is carved only on three stones in Knowth main tumulus.
- Sign 3 is composed of a circle on which rest several arcs making several range of « petals » around it. A curve line start from the base of the figure and goes vertically. The two examples of this sign are in Newgrange and Dowth. Noteworthy, in both cases the sign is on the back (hidden) side of a kerbstone.
- Sign 4 is formed by a single circle associated with a convex triangular figure. The four examples of the sign are in Newgrange L, Dowth and Knowth.
- Sign 5 is a circular motif composed of several concentric circles and a line radiating from the center of the figure. This is one of the most widespread motif in British rock art and one can wonder whether the presence of such signs in passage tomb art is not due to the re-use of quarried carved outcrops, as it was done for the erection of certain steles such as in Ardmore in Northern Ireland (O'Connor 2006).
- Sign 6, known in three examples, is on the back (hidden) face of two kerbstones in Newgrange (K4 and K13). This is a circular motif, a single circle or two concentric circles, on top of which is a vertical line ended by a light rounded thickening.

3.5. Conclusion : a precise corpus of elementary forms

Eleven elementary forms constitute the base of the iconographic repertoire of the parietal art of the passage tombs located around the Irish Sea (figure 3.34). These eleven categories are, without surprise, very close to those that E. Shee Twohig (1972a) and C. O'Kelly (1973) proposed. However, the present classification distinguishes itself in several points: all circles constitute only one category (single circles, concentric circles, circles with central cup) as every signs in parallel lines (scalariform signs), whereas we distinguish two different categories of radiate signs (circular and semicircular) and we dissociate the lozenges from the triangles. Moreover, we arrange these eleven elementary forms in three main groups: circular signs, angular signs and meandering signs.

Each one of these eleven families of signs presents several variations, except the cup. The radiate circular sign presents the greatest number of different forms (20 types) whereas the family of the triangles has only two members. In other categories, the number of variations ranges from six to fifteen.

The signs are the elementary forms of the repertoire, but the latter is not composed only of isolated elementary forms. Indeed, the graphic « vocabulary » of the parietal art also includes recurring constructions formed by the combination of two, three or four signs. This second section of the iconographic repertoire will be examined now.

Chapter 4
The combinations of signs: first elements of a spatial « syntax »

Irish parietal art is composed of elementary graphic units which we call signs. These signs are rarely isolated inside the tombs and several identical and distinct signs are generally gathered on the same stone. The objective of this chapter is to make a corpus of the *recurring* combinations, i.e. those reproduced on at least two stones. *All* signs combinations will not be examined here since most of combinations are single examples.

The second objective is to show, through the recurrence of these compositions, that Irish art is a constructed art, that the relative layout of certain signs is organized and not random. After a study of the basic « vocabulary » in the previous chapter, we will see here the first elements of a complex « syntax ». The scale here is that of signs groups, without consideration for their context.

The results presented in this chapter do not claim exhaustiveness: certain recurring combinations may well have been missed. Lastly, this study wants to be a descriptive one : it presents a corpus without commenting on it. The objective is to list the first elements of a graphic syntax, without seeking here its origins nor its significance.

Before further development, it is important to give some precise details on the terminology employed in this chapter. Among signs gatherings on a stone we will distinguish signs *associations* from signs *combinations*. The first expression is understood as a simple gathering of several signs on the same stone, without specific organization. On the other hand, a signs combination refers to a precise arrangement of signs laid out so as to form a predetermined motif. The degree of organization is not the same : an association is a selection of signs within the same space whereas a combination is a precise graphic construction.

Four points constitute this chapter. The first one draws up the history of the question of signs associations, the second proposes a statistical study of signs associations, and finally the two last points form the corpus of identical and distinct signs combinations.

4.1. Deliberate associations of signs : history of the question

Research has been much interested in the signs and sometimes in their location in the tombs but little attention has been paid to their arrangement in complex motifs. Actually this aspect of parietal art has never been discussed nor been the subject of a systematic examination. Only few authors approach the question but rare are those who have identified recurring structures in the carved compositions. On the other side, only J. McMann (about Loughcrew carvings) rejected the idea of organization in the signs layout, this one being for her purely random (McMann 1994: 533).

G. Coffey is the first archaeologist to point out graphic constructions formed by several signs arranged together. In the final part of his study on the origins of the prehistoric ornament in Ireland, he stresses the analogy between a carved composition on Newgrange eastern recess capstone and incised decoration on Scandinavian bronze swords pommels (Coffey 1896). The figure is composed of a quadrangular sign surrounded by eight circles, motif which is thus regarded as a constructed whole.

A second analogy between Irish parietal art and Scandinavian swords decoration consists of a triangle (or single chevron) placed between two circular signs (cups, concentric circles or spirals). G. Coffey specifies that this theme is on several Irish carved stones and mentions Newgrange kerbstone 52 as an example.

The author is archaeologist, most attached to the signs and to their historical origins, does not aim to identify the signs combinations in particular. Nevertheless, through the two examples cited above, G. Coffey gives the first considerations on that question.

At the beginning of the 20th century, several archaeologists saw in pairs of signs (circles, spirals or lozenges) schematic representations of human eyes (Borlase 1897: 220 ; Déchelette 1912 ; Breuil 1934). This interpretation, generally dismissed today, pointed out an undeniable fact: the frequent and intentional association of two identical signs. M. Herity represents the end of this generation of scientists influenced by anthropomorphic interpretations, as show the many « face motifs » in his signs classification. However, the Irish archaeologist was the first to report the existence of recurring combinations of carved signs. Indeed, the group C of his classification consists in « symbols which are combined in a standard manner with other symbols or elements » (Herity 1974: 105). Despite the criticizable interpretation he made on these compositions, M. Herity was the first to recognize the significance of signs combinations and to see them as an important feature of Irish passage tomb art.

M. O'Kelly, without attaching the same importance to these problems, admitted the intentional character of certain combinations of signs, as reported in an exchange following his communication in the VIIth UISPP conference in Prague in 1966 : « Asked if combinations of three motifs [spirals, chevrons and lozenges] described by Professor O'Kelly were in all cases deliberate, he answered that in the most striking examples of the ornament this is positively so ; but there is also cases of casual proximity of different motifs » (O'Kelly 1970: 536).

In the 1960s-1970s, the excavations carried out in Knowth necropolis brought to light a

considerable number of carved stones, largely higher than all stones already known in the rest of the island. These new carvings allowed new approaches and discourses on Irish parietal art and have strongly contributed to the recognition of a spatial organization of the carved signs. In an academic work, M. O'Sullivan recorded the corpus of the carved stones in the main tumulus and identified six groups of composition on the kerb (O'Sullivan 1981, vol. 1: 170-4). The definition of these groups, according to the form and to the relative organization of the signs, testifies to a new approach which does not consider the signs as independent elements and analyzes their relations and the recurrences in their layout.

G. Eogan, for his part, distinguishes 15 different styles in Knowth parietal art (Eogan 1986 : 153-65). In his analyze, the archaeologist recognizes various recurrences in the arrangement of certain signs: the large simple circles carved on kerbstones 52 and 53 are thus compared to an identical composition on the two carved stones of Rathkenny megalithic tomb (« style 8 ») ; G. Eogan also notices the crescentiform signs laid out in opposed pairs (« style 10 »). The term « style », incidentally, is questionable here to indicate what actually is combinations of signs.

The papers of the Nantes conference, held in 1995, are marked by a consciousness of the importance of the carvings context. Artwork is not analyzed in an abstract way any more (tables of motifs and « styles » analyses) but is studied according to their relative position and especially, as will be discussed in chapters 5 and 6, according to its location on stones and within monuments. In this occasion, E. Shee Twohig insists on this « contextual approach » and recognizes in Loughcrew the occurence of signs « associations » or « combinations of designs » constituting a « design grammar of the carvings » (Shee Twohig 1996: 73, 79). The paper describes mostly the relations between carvings and tombs architecture and does not give precise examples of signs combinations. However, the postulate of the Irish archaeologist shows the new and important interest in this question. If the question of signs combination is not really treated here, it is at least very well formulated and recognised.

Lastly, in the Bougon conference held in 2002, M. O'Sullivan synthesizes the knowledge on Irish parietal art and proposes an original classification of the carved signs in three categories: basic elements, variations and combinations (O'Sullivan 2006: fig.4). The last category, illustrated by single and recurring examples, shows well the recognition of signs combination as a main feature of passage tomb art. However, M. O'Sullivan did not develop this question any further nor did he comment on the intentional character of these signs arrangement.

The phenomen of signs combination, although recognised, has never been comprehensively treated on the scale of the British Isles. The study we propose now seems essential to understand the first structural level of Irish parietal art.

4.2. Statistical analysis of signs associations

Before presenting the corpus of recurring combinations, it is interesting to know if, in a more general way, some recurrences appear in the selection of signs gathered on a same stone. Through a statistical study similar to the one carried out by B. Maisonneuve on Breton parietal art (Maisonneuve 1983: 27-31), it is proposed to approach associations of signs from a quantitative point of view. Is there any tendencies in the association or exclusion of particular signs? Can a statistical study reveal certain rules in the selection of signs collected together on a same stone? The database made for this thesis work records all the signs carved on each one of the 634 decorated stones. This tool can be used for statistical purposes and allows to answer such questions.

4.2.1. Description and analysis of the data

a. Total number of signs associations

The first table (figures 4.1 and 4.2) shows the total number of signs associations. Each square gives the number of stones on which are both signs indicated in abscissa and ordinate. The first column on the left gives the total number of carved stones on which appear each sign.

The raw data of this table show that the greatest number of associations concerns cupmarks, circles, arcs and meandering signs : cup+circle (121 stones), cup+arc (136 stones), circle+arc (203 stones), circle+meandering sign (102 stones), arc+meandering sign (115 stones). The smallest numbers of associations concern radiate signs, triangles and scalariform signs : radiate circular sign+radiate semicircular sign (2 stones), radiate circular sign+triangle (3stones), radiate semicircular sign+triangle (4 stones), radiate semicircular sign+scalariform (5 stones), triangle+scalariform (6 stones).

This table indicates the real number of signs associations however these raw datas do not help to appreciate the associations in relative proportions for each sign. Indeed, the more frequent is a sign, the more great is the number of its associations with other signs and vice versa. But the total number of each sign is very diversified, from 322 stones for arcs to 20 stones for radiate semicircular signs. A proportional analysis is then needed to complete these results.

b. Proportional analysis of associations sign by sign

The second table (figure 4.3) shows, on a percentage basis, in what proportions each sign is associated to the other signs of the repertoire. In abscissa are the reference signs and in ordinate are the signs associated to the reference signs. For example, the first two lines of the table show that 68% of stones bearing cupmarks have also carved circles ; conversely, 42% of stones bearing circles have also cupmarks. The system allows then to appreciate the signs associations according to a refernce sign, each association being proportionaly different depending on which sign is taken as reference : for example, 90% of radiate circular signs are associated with arcs but only 5,6% of arcs are associated with radiate circular signs.

The table being not easy to read, its datas have been illustrated by several graphs with vertical bars (figure 4.4). Each graph is a graphic conversion of a line of the table, except the first one (a) which shows the proportion of each sign on the 634 stones of the corpus. Graph b illustrates the datas of the first line of the table and indicates the proportion of the signs carved on the 178 stones

bearing cupmarks. The system is the same until the last graph (l) which illustrates the proportion of the signs carved on the 191 stones bearing meandering signs. These graphs allow to see in what proportion each sign is associated to the other ones. The aim of this study is to point up the main associations and the main exclusions that are found in signs groups.

The table datas and their graphic illustration show two main tendencies :

- The circular signs (cups, circles, spirals, arcs, radiate signs) are mainly associated with signs of the same category whereas angular signs (chevrons, triangles, lozenges) are equally associated with circular and angular signs. Otherwise, scalariform and meandering signs are mainly associated with circular signs.
- The angular signs (chevrons, triangles, lozenges) are more often isolated than are the circular signs (cups, circles, spirals, arcs, radiate signs) which are mainly associated with other signs.

c. Classification of associations of two signs

There are 11 signs in Irish passage tomb art, then 55 associations of two different signs are possible. The last question is about the « couples » of signs : which ones are the most frequent and which ones are the rarest ? In order to have a proportional and reciprocal criterion enabling to determine the frequency of signs couples, we chose to calculate the average of both percentages that present the association of two signs in the previous table. For example, 68% of cups are associated with circles and 42% of circles are associated with cups : the average association of these two signs is of 55%. According to this criterion the 55 « couples » of signs has been ranked in a decreasing order and illustrated by graph (figure 4.5).

Thus, the signs which are proportionately most often associated are : chevron and triangle (78,6%), circle and arc (67,5%), cup and arc (59,3%), cup and circle (55%), arc and radiate circular sign (50,3%), arc and meandering sign (48%), arc and radiate semicircular sign (47,8%), spiral and arc (47,8%). Except the first pair (chevron+triangle), the seven most frequent couples are composed of an arc and a circular sign. The signs which are proportionately the most exclusive are : radiate circular sign and radiate semicircular sign (7,5%), triangle and scalariform (7,1%), radiate circular sign and triangle (7%).

Except the two first and two last « couples », a very little difference can be seen between each association (from 0,1% to 7%). It is consequently uneasy to draw strong tendencies from this classification whose function is more indicative than informative. There appear the limits of such statistical analyses.

4.2.2. Limits of the statistical approach

A statistical analysis is limited for several reasons. Firstly, the results obtained are too vague and show only general aspects. Only few informations are given about signs associations and signs exclusions. Moreover, the method itself is criticizable. The statistical analysis is disconnected from the observable context and such abstract approach is limited, as already demonstrated by M. O'Sullivan (O'Sullivan 1986). The study presented above does not regard the signs arrangements. Two signs on a same stone are not necesseraly associated in a graphic way and sometimes they can

be opposed. Newgrange kerbstone 52, for example, has circles, spirals, arcs and squares : those signs are statistically associated but actually two groups of signs (spirals+squares vs circles+arcs) are clearly opposed from each side of a central vertical line. Several signs on a same stone are not necessarily linked intentionally. The signs associations and their graphic syntax must be analysed only throught an attentive observation in context and not through an abstract matrix.

Statistical tools must then be regarded as means and not as an end. The database is a tool which allows to select automatically stones bearing the same set of carved signs, but only a carefull observation of the compositions makes it possible to detect recurrences in the combination of the signs. The statistical analysis, by showing some general aspects of sign associations, can be seen as an introduction to a more precise study that will be proposed in the following chapter. The forthcoming analysis uses a different method (direct observation of the signs) and aims, through precise examples, to reveal the various signs combinations in Irish passage tomb art.

4.3. Combinations of identical signs

The combinations of identical sign are graphic constructions made with several signs of a same family. Recurring motifs composed of several circles, several arcs, several chevrons, several triangles, several lozenges or several meandering signs have been recorded. All signs are not concerned by this first category of combinations since no precise and recurring constructions of spirals, radiate semicircular signs or scalariform signs have been identified.

4.3.1. Combinations of circular signs

4.3.1.1. Groups of single circles

This composition consists in simple circles of large dimensions, deeply carved, close to each other and displayed on the whole surface of the stone (figure 4.6). These circles vary in shape and dimension and their relative layout does not seem to be organised in a specific way.

This particular theme appears in Rathkenny on the single remaining orthostat and on the under face of a capstone resting on it (Rk.A ; Rk.B). The Rathkenny carvings were dated from Iron Age because of a triskele carved on the lower part of the orthostat (Raftery 1939), but the monument and its carved circles may be of a Neolithic date (Shee Twohig 1981 : 236). In Dowth, a similar group of circles is on two adjoining kerbstones on the opposite side of the northern tomb entrance (Dh.K52 ; Dh.K53). There also the circles are deeply carved (O'Kelly & O'Kelly 1983 : 164). The same technique has been used for two large cirlces carved on a stone in Nether Largie cairn (Argyll, Scotland – Beckensall 1999). The last example is a group of seven simple circles carved on a loose stone discovered in Knowth (Kh.loose2).

This composition, although carved on six stones only, is consistent on both graphic and technical levels. G. Eogan, in 1986, gathered in a same stylistic category, called « dispersed circles », Dowth kerbstones 52 and 53 and Rathkenny stones (Eogan 1986 : 161).

4.3.1.2. Lines of simple circles

Eleven carved stones show combinations of three to ten simple circles arranged in a straight or slightly curved line (figure 4.7). These lines have an horizontal or a vertical orientation but are never diagonally disposed. They are mainly single lines but several examples of parallel lines are also known (LcI.C13 ; Ng.R20 ; Kh.K42 ; Kh.loose23).

On some other stones, cupmarks are layed out in a line (figure 4.8): such combination appears in three stones (LcF.L4 ; LcT.C15 ; NgL.B) where they are displayed horizontally and, in two cases, on the entire width of the stone (LcF.L4 ; NgL.B). E. Shee Twohig mentions other cupmarks arranged in lines on one of Loughcrew X2 kerbstones (Shee Twohig 1981 : 220). In Newgrange and Knowth, two kerbstones have a lines of three to five cups surrounded by an oval shape (Kh.K83 ; Ng.K52), as noticed by M. O'Sullivan (O'Sullivan 1986 : 78).

4.3.1.3. Lines of complex circular signs

Lines of simple circles are in greatest number but in several tombs are also carved similar combinations composed of more complex circular signs (figure 4.9): cup surrounded by a circle (DhN.C7 ; LcT.C5 ; Ng.K13 ; Ng.RB), concentric circles (DhN.C7 ; Kh.K52 ; Ng.K13) or radiate circles (figure 4.10) which are specific to Dowth monument (Dh.K51 ; DhS.C12 ; DhN.C7). Unlike simple circles lines, these motifs have mainly a curved shape.

4.3.2. <u>Combinations of arcs</u>

4.3.2.1. Lines of simple arcs

Ten carved stones have simple arcs of type 2a organised in a line in which each arc is open toward the previous one (figures 4.11 et 4.12). The number of arcs vary from 2 to 18 individuals. The lines are vertically (LcF.C1 ; LcF.C5 ; Kh.K76) or horizontally (Kh.K29 ; Kh.K52 ; Kh.K93) disposed, and more rarely in a diagonal position (Kh.K32 ; LcF.R2). This composition appears also on two roofstones in Carnanmore and Knockroe (Cm.Co1 ; KrW.RS).

These are generally single lines of arcs but combinations of several parallel arcs are also known (KrW.RS ; LcF.C1). The arcs that compose the motif are of a simple shape except those carved on Knockroe West roofstone which have a central cup, or the arc carved on the center of orthostat C1 in Loughcrew F which encloses a vertical line. Moreover, some arcs are sometimes set in a reverse position : on Knockroe West roofstone, the upper arc on the left line is reversed towards the other ones ; on Knowth kerbstone 52, the arc on the left end of the line is also opposed to the other ones; finally, on Knowth kerbstone 93, a line of six arcs is divided into two opposed sets. In each case, arcs are opposed by their rounded end and not by their open side.

4.3.2.2. Rows of simple arcs

Close to the previous composition, this combination of simple arcs (figure 4.13) consists in an horizontal row of several signs set side by side and open towards the same direction (upwards or downwards). This particular combination is found exclusively in Knowth main tumulus. The layout of the rows is mainly rectilinear and horizontal (KhE.RS10 ; Kh.K78 ; Kh.K41 ; Kh.K64) but two curved composition are also known on two kerbstones (Kh.K15 ; Kh.K32).

4.3.2.3. Opposed arcs

In Knowth, five kerbstones show one or several pairs of arcs opposed by their open side (figure 4.14). The arcs that composed the combinations are of types 2 (Kh.K80 ; Kh.K83) and 3 (Kh.K30 ; Kh.K65 ; Kh.K86). This motif is specific to Knowth and was noticed by G. Eogan as shows his tenth style category called « opposed C's » (Eogan 1986 : 162).

4.3.3. <u>Combinations of chevrons</u>

4.3.3.1. Simple chevrons boxed in

Simple, i.e. V-shaped, chevrons are mostly carved in combined groups and single examples are very rare. The commonest combination consists in a set of three to eighteen boxed chevrons (figure 4.15). The motif is generally set vertically on the stones (Cg ; Dh.K51 ; KhW.Or50 ; Kh2. Or29 ; Kh14.Or8 ; Ng.K12 ; Ng.K18 ; Ng.K85 ; Ng.C4) and only three horizontal examples have been recorded (KhE.RS28 ; Kh14.Or8 ; Ng.K96). In some cases, a space was let in the angle of the combined signs (KhE.RS28 ; KhW.Or50 ; Kh14.Or8 ; Ng.C4).

4.3.3.2. Simple chevrons boxed in with central line

In Newgrange and Knowth, several sets of boxed chevrons are linked together by a central line which cuts each sign at its angle (KhE.Or37 ; KhW.Co37-38 ; Ng.K4 ; Ng.K51 ; Ng.K91 ; Ng.RS3 – figure 4.16). These motifs are sometimes reminiscent of trees represented by a trunk and branches radiating upwards or downwards (Darvill 2001 : 54). Same figures appear on a vessel discovered in Lannec er Gadouer barrow and on a stele at Guib in Morbihan and were interpreted as tree representations (Cassen 2000e). Regarding Ireland, the geommetric and abstract nature of the iconography makes such interpretation doubtful. This question will be examined in a further point of this work (see chapter 5).

A similar composition was recorded by V.G. Du Noyer on orthostat C4 (now burried) in Loughcrew W (Frazer 1893 : fig. 74). In the same necropolis, E.C. Rotherham also recorded the motif – whose drawing evokes more a vegetal than a set of boxed chevrons – on one of tomb L orthostats, now lost (Rotherham 1899 : fig. 3).

Finally, a similar sign was carved on a cist capstone at Cairnbaan in Scotland (Campbell *et al.* 1961 : fig. 3).

4.3.3.3. Boxed zigzag chevrons

One of the most famous motifs in Irish passage tomb art consists in several parallel zigzags (figure 4.17). The theme has been recorded on 55 stones : it is then the most recurring composition. Its geographic distribution is also significant since the motif is found in the main Irish necropolises (Fourknocks, Brugh na Boinne and Loughcrew) as well as in Wales (Barclodiad y Gawres) and in Orkney (Holm of Papa Westray South).

4.3.3.4. Boxed zigzag chevrons with parallel lines

Boxed chevrons are sometimes carved with several parallel lines which cut the zigzags

at their angle (figure 4.18). The motif occurs on six stones in Fourknocks (Fk.L4), Knowth (Kh. K23 ; KhE.Or3 ; KhE.Co65 ; KhE.Co52-3) and Newgrange (NgK.Or9). The parallel lines cut the chevrons mainly at each angle and more rarely at one angle in two (Kh.K23 ; KhE.Or3).

4.3.4. Combinations of triangles

4.3.4.1. Rows of triangles

A row of triangles is a combination of two to eight triangles set side by side and whose bases rest on a same line which is rarely carved (figure 4.19). Ten stones show this motif which is found mainly in Knowth (Kh.K85 ; KhE.jRcellN ; KhE.behindCo39-1 ; KhW.Or41 ; Kh14.Or8) and Newgrange (Ng.K88 ; Ng.L22 ; NgL.B). One single example is known in Loughcrew (LcH. C11) where six triangles, layed out on two rows, are connected together by a picked line.

The triangles which compose such rows are mainly solid ones. Except two examples (KhE. jRcellN ; KhW.Or41), the axis of the combination is horizontal. The triangles point upwards as often as downwards.

4.3.4.2. Parallel rows of triangles

Several rows of triangles are sometimes combined in parallel sets so as triangles are horizontally and vertically connected by their angles (figure 4.20). This « chessboard »-like combination makes a geometrical composition alternating solid triangles and empty triangles. The rows are always set horizontally except on a Newgrange roofstone (Ng.Y) whose hidden carvings are certainly not in the position for which they were firstly intended. The motif is uncompleted on two stones (KhE.Or54 ; Ng.Y) which thus show the incised sketch and inform us about the stages of its making : incised parallel lines, then incised chevrons between each line, and finally picking in every two triangular spaces.

4.3.4.3. Triangles opposed by the point

Several triangles, combined in pairs or in rows, are opposed by the point (figure 4.21). The two opposed points are often connected, making hourglass-like motifs (Ng.C8 ; Ng.Co1/C2 ; Ng.Co1/C12-13), but are sometimes slightly distant (LcL.C16 ; Ng.Co1/C10). Here again the axis of the composition is horizontal in all examples.

4.3.5. Combinations of lozenges

4.3.5.1. Lines of lozenges

Twelve carved stones have lines of lozenges connected by their pointed end. The signs which compose the motif are empty lozenges (figure 4.22), solid lozenges or lozenges with internal subdivisions (figure 4.23), and the axis of the composition is horizontal as well as vertical. Some empty lozenges are subdivided into two parts by a diagonal line (KhE.Or56 ; Ng.C10 ; NgL. A), other ones are made by two boxed signs (Kt.W ; Fk.E). Likewise, some solid lozenges are subdivided into two (Ng.K4 ; Ng.Co1/C12-13) or four parts (Ng.K4 ; Ng.L15) ; other lozenges are composed of a solid sign inserted in a empty one (Ng.K1).

4.3.5.2. Simple grids

       Grid patterns are made by sets of parallel and perpendicular lines which cut accross each other in order to form a set of equal squares (figure 4.24). The technique used for this motif is rarely picking, only four examples of this type have been recorded (LcF.R2 ; LcL.C19 ; LcU.C5 ; Ng.K18). The most common technique is incision, recorded on eight stones (Kh.K1 ; Kh.K116 ; Kh.K120 ; KhE.Or56 ; LcL.C19 ; LcL.Co1/C16 ; Mh.Or19 ; MB.M18). It is noteworthy that incised grids are often made of horizontal and vertical lines (Kh.K11 ; Kh.K116 ; Kh.K120 ; KhE. Or56 ; Mh.Or19) and not of diagonal lines as almost all quadrangular signs combinations.

4.3.5.3. Chessboard-like grids

       Chessboard-like combinations consist in a grid of solid and empty squares alternating (figure 4.25). In most cases the composition is formed by two lines of solid squares joind by the angles (DhS.C6 ; FK.R5 ; Kh.loose23 ; KhE.Or54 ; Ng.C16). On orthostat A in Knowth 4, three rows of squares were picked. On Newgrange orthostat C2, the sides of the composition are completed by a picked chevron which confirms here the Neolithic authors will to form both solid and empty squares since the contour of the last is marked out.

4.3.5.4. Grids of solid squares

       This composition consists in a grid whose lines are let unpicked and whose squares are solidly picked (figure 4.26). This is, in a way, the « negative » variation of the simple grid motif. This pattern is found mostly in Newgrange (Ng.K52 ; Ng.K67 ; Ng.R21) and another example is also known in Knowth (KhE.Or48). Newgrange orthostat R21 is the only example of a grid composed of subdivided squares.

4.3.6. <u>Combinations of meandering signs</u>

Parallel meandering lines

       The only combination of meandering signs that has been identified consists in a set of parallel meandering lines. The motif is laid out vertically (DhS.C6 ; DhS.C7 ; Kt.E ; Ng.K12 ; NgL.A ; LcH.K8 ; ByG.C16 ; Bcd.stele – figure 4.27) and more often horizontally, particularly on kerbstones (LcI.R2 ; LcI.C5 ; LcL.C9 ; Kr.K31 ; Kh.K14 ; Kh.K17 ; Kh.K23 ; Kh.K57 ; Kh.K78 ; Kh.K82 – figure 4.28).

4.4. Combinations of distinct signs

The combinations of distinct signs are graphic constructions made with signs of different families. In total, 19 recurring combinations have been recorded, regarding all the signs except the radiate ones (circular and semicircular) which seem to be independant within the carved compositions.

For presentation puposes, the combinations of distinct signs have been gathered in three sets : combinations of circular signs (circles, arcs and cups), combinations of angular signs (chevrons, lozenges and triangles) and mixed combinations, in greatest number, composed of two or three circular and angular signs.

4.4.1. Combinations of circular signs

4.4.1.1. Spiral inserted in a circle

Three stones in Newgrange (Ng.K18 ; Ng.K51 ; Ng.Co3/L5-6) and one stone in Knockroe show a spiral inserted in a single circle (figure 4.29). Except the Newgrange roofstone which could be in a secondary position, all stones concerned here are kerbstones.

4.4.1.2. Circle as center of spiral

This motif has been found on eight stones from six tombs (figure 4.30). This is a simple spiral whose center is a circular sign : single circle (LcL.C17 ; Ng.X ; BgII.L ; DhN.C19), two concentric circles (LcL.L4), three concentric circles (Ng.K17) or circle with central cup (Tr.C2 ; SK.C4).

4.4.1.3. Circular sign with arc appendages

This combination of circles and arcs (figure 4.31) is common in Loughcrew necropolis but is not present in Boyne necropolises. It is also found on Sess Kilgreen backstone and in two non funerary contexts : on a loose stone from Youghal in South-West Ireland (Shee 1968) and on one of the stones of Glassonby stone circle.

The motif is composed of a circular sign formed by concentric circles, on which rest one or two sets of arcs. There are mainly two arc motifs, set symmetrically on each side of the vertical axis of the composition (SK.C6 ; LcU.C3 ; LcU.C9 ; Gb ; Youghal). In Loughcrew L, the motif has three arcs (LcL.L4) or one single arc (LcL.C16).

4.4.2. Combinations of angular signs

4.4.2.1. Chevrons, lozenges and triangles imbricated

The three main angular signs are graphically very close and are sometimes confused (see chapter 3.2). They are often found associated in geometric combinations based on a zigzag structure which defines triangular and quadrangular spaces. Several constructions has been recorded (figure 4.32). The first one consists in a line of lozenges framed by several chevrons (Fk.A ; Fk.E ; Fk.F ; KhE.Or48). The second consists in a grid of solid lozenges whose lower row is framed by a chevron (Ng.K52 ; Ng.Co1/C12-13). Sometimes, a row of triangles completes the motif in its upper and lower limits (F.E ; Fk.F ; Ng.K52 ; Ng.L22).

The third motif is composed of two rows of triangles opposed by the point above two sets of chevrons (Ng.Co1/C10 ; Ng.Co1/C2). Finally, the fourth motif consists in a line of lozenges whose lower corners rest on the upper angles of a chevron (Ng.RscellE).

4.4.2.2. Chevron inserted in a lozenge

Five carved stones in Loughcrew and Boyne necropolises show an horizontal chevron inserted in a quadrangular sign (figure 4.33). The latter consists in a simple lozenge (LcF.R2 ; Ng.K67 ; Ng.L19) or in several boxed lozenges (Kh17.Or13 ; LcH.R2 ; Ng.K67).

4.4.3. Mixed combinations

4.4.3.1. Various signs inserted in a circle

Besides spirals (see above), various signs were carved inside circles (figure 4.34). They are simple carved lines (KhW.Or40 ; LcH.C18 ; LcL.R3 ; LcL.L14) or more elaborate signs like meandering lines (LcL.L14), chevrons (Kh.K38), lozenge (LcL.C11) and triangle (Kh.K72).

4.4.3.2. Various signs inserted in an arc

Several arcs of type 2 enclose various signs (figure 4.35) : meandering lines (Kh.K77 ; DhS. R1), indeterminate signs (LcF.C1 ; LcI.C113 ; LcJ.C4), scalariform sign (LcU.C6) and triangles (Ng. K1 ; Ng.K4 ; Ng.K52).

4.4.3.3. Various signs enclosed by a meandering line

The meandering sign has infinite graphic possibilities that Neolithic people used in various ways, as shown by four examples of meandering lines carved so as to fit the contour of signs of various shapes (figure 4.36). On Newgrange K first sillstone, a meandering line encloses a quadrangular sign. This motif is reminiscent to another one, unfortunately uncomplete, on a broken fragment discovered in Loughcrew U. The enclosed motif here may be a circular sign (concentric circles or spiral). On corbel Co86/87 in Knowth, a simple arc is carved between the curves of a meandering line whose both ends meet. Finally, on Drumreagh carved stone, a three simple circles alignement is enclosed by a sinuous line which starts and ends on top of the stone.

The motif on the latter has been compared with the carvings of the Clear Island stone and of orthostat C16 in Barclodiad y Gawres (Savory 1973: 85-6 ; Shee Twohig 1981: 233). They are however three different constructions. In Barclodiad y Gawres, the central motifs (lozenges) are framed by two parallel meandering lines (and not a single one). On Clear Island stone, the central motifs (spirals) are framed on one side by an meandering line, and on the other side by a set of arcs.

4.4.3.4. Simple chevrons between two spirals

In Knowth, three stones show a composition formed by a pair of spirals coiled in the same direction and several simple chevrons inserted in the concave triangular space let between the both circular signs (figure 4.37). The motif has one single set of chevrons (Kh.K56) or two opposed sets (KhE.Co5D/6E ; KhE.CoF10).

4.4.3.5. Square between two spirals

This combination rest on the same graphic model than the latter : the corner of a square or lozenge is inserted in the triangular space let between two spirals set side by side (figure 4.38). Here also, there can be one or two squares set from each side of the junction between the both circular signs. The motif is on Newgrange kerbstone 67 where it was commented by G. Coffey (Coffey 1896 : 50), but also on other stones in Ireland (Ng.L19), Wales (ByG.C1) and Orkney (Pw.667). This theme is then in little number but its distribution in the British Isles is quite large.

A sherd decorated with the motif, discovered in the famous Skara Brae settlement (Orkney – Childe 1931), raises several questions. Indeed the ceramic belongs to the Groove Ware type, dated from the first half of the 3rd millenium (Cleal & McSween 1999), period subsequent to the construction of Irish passage tombs, which explains the lack of such potery in these funeral monuments. The link between passage tomb art and Grooved Ware ornament is thus discussed (Cleal 1999 : 6-9). According to A. Brindley, both traditions may have coexisted in the very end of the third millenium : the Skara Brae shird would then belong to an early stage contemporary with the beginning of the « plastic style » which marks the end of passage tomb art in the Boyne valley (Brindley 1999 : 135-6). In Orkney, Grooved Ware ceramics are found among the material of passage tombs with side recesses, an architectural type which succeeded the partitioned passage tombs (Bradley *et al.* 2000 : 47-8). There are no evidences for a direct link between Irish passage tomb art and the sherd from Skara Brae but passage tombs and Grooved Ware ceramics are two partially contemporary traditions, sometimes associated in certain British regions. It is then not surprising to find common decorative themes in both groups.

4.4.3.6. Triangle or lozenge between three circles or cups

Based on the same graphic model than the two last motifs, this combination consists in a triangle or lozenge inserted in the space between two adjoining circles or cups (figure 4.39). However, contrary to the last compositions, there are three circular signs and not two, which makes two intersections where are inserted the angular signs. The theme is quite rare and was carved only in Newgrange main tomb. On the inner face of the East recess capstone, two lozenges are inserted between three circles. On kerbstone 52, three « cartouches » enclose an alignment of three large cups between which are inserted triangular signs.

The principle of an angular sign inserted between two circular signs is a theme declined in three modes using different signs : spirals, circles or cups for the circular signs and chevrons, triangles or lozenges for the angular sign. The combinations 4.4.3.4, 4.4.3.5 and 4.4.3.6 may originate from a same graphic model, as G. Coffey suggested it (Coffey 1896 : 50).

4.4.3.7. Spiral, chevrons and lozenge

Newgrange kerbstone 85 and Knowth kerbstone 15 show a same motif composed of a spiral with adjoining chevrons on the right under which is a single lozenge (figure 4.40). A similar construction can be seen on Knowth kerbstone 41 where the motif has a similar position than on kerbstone 15.

4.4.3.8. Spiral(s) over chevrons

In Knowth necropolis, seven stones with various functions (orthostat, corbel or roofstone) show a combination of several chevrons set in parallel and horizontally above which are one or several spirals (KhE.RS32 ; KhE.CoF10 ; KhW.Or16 ; KhW.Or17 ; KhW.Or18 ; KhW. Or81 ; Kh17.Or15 – figure 4.41). This composition is reminiscent of the spirals and lozenges arrangement carved on the left part of Newgrange kerbstone 52. Finally, Knowth 17 orthostat 15 is distinguished by lozenges inserted below the parallel chevrons, thus forming a three signs combination that is also found across the Irish Sea, on orthostat C16 in Barclodiad y Gawres tomb in Wales.

4.4.3.9. Various signs connected to the top of an arc

Several boxed arcs signs have a meandering line starting from their top (KhE.Or54 ; KhW. Co37/38 ; DhS.RS2) or a line connected to a circle (Kh.K8) or to a spiral (LcI.C5 ; Kh.K15 – figure 4.42). In the two last examples, the connecting line between the two signs is curved.

4.4.3.10. Meandering sign connected to a line of lozenges

The combination is composed of a vertical line of lozenges and a meandering sign whose one end is connected to the angle of one of the lozenges (figure 4.43). The junction between both signs is made on the lowermost lozenge of the line (Kh.K13 ; NgL.A ; LcL.C19), on the uppermost one (ByG.C16 ; Kh14.Or8) or on an intermediate one (Ng.K4). On orthostat 8 in Knowth 14, the connection between both signs is not made by the end of the meandering sign but by a curve line on the side of the motif. Loughcrew L orthostat C19 show a grid motif to which is connected several meandering signs. In the same way, on orthostat A in Newgrange L, two meandering signs are connected to two opposite sides of a lozenge. In certain examples, the meandering sign is parallel to the line of lozenges and the latter are inserted between the curves of the sinuous sign (ByG.C16 ; NgL.A ; Kh14.Or8).

4.4.3.11. Meandering sign and line or row of arcs

The meandering sign, as pointed out previously, plays readily on the ambiguities of its forms. This feature can also be seen in the frequent association of the sign with repeated arcs arrangements (figure 4.44). In certain cases indeed the confusion between meandering lines and arcs in row is noteworthy, as on kerbstones 64 and 78 in Knowth, on roofstone 10 in Knowth eastern tomb or on orthostat C5 in Loughcrew I. The graphic similarity of both signs is also emphasized by the superposition of a meandering line and a line of arcs (Kh.K52 ; Kh.K93). Finally, in other examples, a line of arcs seems to form the vertical extension of an horizontal meandering line (Kh.K32 ; Cm.Co1).

These examples show a will to stress the graphic ambiguity between meandering sign and arcs arrangements, both motifs being built on the same repetition of regular curves. It is unfortunately impossible to know if this graphic ambiguity represents an ambiguity of symbols.

4.4.3.12. Cup(s) inside the curves of a meandering sign

One or several cups are sometimes inserted inside the curves of a meandering line. The

number of cups vary from one (Bcd ; Kh.K83 ; LcF.R2 ; LcU.C9) to two (KhE.lcellN), three (LcT. Co1/C2 ; NgK.Or5) or four (MB.M22 – figure 4.45).

4.4.3.13. Meandering sign and circular sign (cup+circle+arc)

Although carved on two stones only (LcT.RscellE ; Tr.C2), this composition is noteworthy for its precise characteristics. The motif consists in a meandering sign whose dimension decreases gradually from the left to the right where it is connected to a circular sign composed of a circle with central cup inserted in a nearly closed arc (figure 4.46). On Tara orthostat, the arc forms the beginning of a spiral. However, on the drawing recently made by U. Mattenberger, the arc seems to be a closed circle (O'Sullivan 2005 : xii).

4.4.3.14. Arc with central line

Three kerbstones in Knowth have an arc of type 3 carved with a short straight line between its both ends (figure 4.47). The orientation of the motif vary in each example : open downwards (Kh.K73), towards the side (Kh.K79) or upwards (Kh.K7).

4.4.3.15. Scalariform sign with axial circle

This is the only combination including a scalariform sign. On seven stones, the sign is connected to a circular motif carved on one end of its longitudinal axis (figure 4.48), this last being formed by a carved line or by a linear space (see chapter 3.2.4). The circular figure of the composition is composed of a single circle (LcU.C6), a cup enclosed by a circle (KhE.Or3 ; LcH.R2), two concentric circles with a central cup (LcT.L2), four concentric circles (DhN.R5 ; DhN.C19) or two concentric circles enclosing a cross (DhN.C2). On orthostat C4 in Knockmany, a carved motif, unfortunately very weathered, seems very similar (Shee Twohig 1981 : fig. 210). A variation of this theme consists in a circular sign set in the axis of the parallel lines of the scalariform sign (DhN.C7 ; LcL.C17).

4.5. Conclusion : a « grammar » of signs

In total, 48 recurring signs combinations have been inventoried in this study (figure 4.49). These combinations are made of identical signs (23 combinations), distinct circular signs (3 combinations), distinct angular signs (5 combinations) and signs of distinct categories (17 combinations). These combinations are in sufficiently great number so that one does not regard them as random and anecdotic representations: they constitute on the contrary an essential part of the iconography of Irish passage tombs.

The repertoire of the graphic forms is thus complex and does not limit itself to individual figures. As a written text, the parietal art is composed of a basic alphabet whose elements (signs) are arranged and organized in recurring units forming a precise vocabulary (signs combination). The funerary iconography of the Irish Neolithic is then declined in three levels (figure 4.50):

- (1) eleven families of elementary forms, gathered in three categories (circular signs, angular signs, meandering signs) ;
- (2) combinations of signs of the same category ;
- (3) mixed combinations.

The first part of our study attempted to define the forms and the structure of the iconography. The second part of our research will now focus on the layout of this iconography in the space of the passage tombs. Thus, after the study of the alphabet and the vocabulary, the following chapters will be devoted to the grammar of the signs: what recurrences appear in the location of the signs and signs combinations in the complex space of the architectures? What are the rules of this spatial organization?

Part three

Parietal art and architectural space

Chapter 5
Spatial organisation of the signs on the stone scale

The basic elements of Irish passage tomb art are associated to form precise and recurring combinations. These combinations show that the signs are organised together in space. In this chapter, the relations between iconography and stone space are analysed. Passage tomb art is indeed applied on large stones which are individual spaces, with limits and a complex topography (sides, arrises, cracks, etc.). The aim of this chapter is to show through several examples that a part of individual signs and signs combinations are organised according to the stone space.

Archaeology has paid little attention to the relations between the carved signs and their support, as shown by the various art drawings which avoid all information about the stone. It is also frequent to see only a part of the contour of the carved stone represented or sometimes the stone is distorted in order to make the iconography more readable. A field visit or even an observation of old representations allow identification of interesting relations between stone and carvings.

Besides, little research has been carried out on the location of the carvings in the stone space, but then it is important to understand a monolith and its carvings as a coherent whole, as one and the same object. Just as a ceramic ornament is not distinguished from the form of the container on which it appears, it is necessary to examine passage tomb art according to its support. A carved stone is an object which extends into the three dimensions of space, which has volumes, an orientation and, as will be examined in chapter 6, a specific location in the organised space of the tomb.

The spatial organisation of the signs on the stone scale will be studied in two stages. The first will focus on the question of the signs' location in the limited space of the stone : how are the signs organised according to the outline of the stone and its orientation in space ? The second point will examine the integration of the relief into carved compostions : in what way natural lines of stone have a role in graphic representations ? There also, the aim is less to make an exhaustive inventory than to focus on a significant feature of Irish passage tomb art.

5.1. The stone space

5.1.1. « Plastic art »

          « Plastic art » is a term created by M. O'Sullivan (O'Sullivan 1986) which refers to a particular category of Irish passage tomb art. This art is posterior to the classic art of the island and is frequently superimposed to it. Its geographical distribution is limited to some monuments: Knowth essentially (eastern and western tombs, a part of the kerb), but also Newgrange (many orthostats, kerbstones 1, 52 and 67), Dowth South (orthostat C12), Fourknocks, Millin Bay, Sess Kilgreen, Knockroe and Barclodiad y Gawres.
          Several criteria distinguish it from the traditional iconography of Irish passage tomb art. The usual signs repertoire is almost not used anymore and broad carved bands or large picked areas, whose dimensions are largely higher than the traditional picked signs, are prefered. Moreover, the plastic art has been carried out after the construction of the tombs and is then located on accessible places contrary to the traditional iconography whose distribution extends to high parts of the tombs (corbelling) and on hidden surfaces of architecture (see chapter 8). But the principal characteristic of the « plastic art » is its adaptation to the physical shapes of the stone. The picked elements fits the contour of the stones as well as the reliefs of its surface. Thus, the plastic art consists less in a representation of signs on stone than in an enhancement of the stone by carving. This art is essentially devoted to the space and volumes of the stone.

          We will not develop here the description of the plastic art which M. O'Sullivan defined all stylistic and chronological aspects (O'Sullivan 1986 ; 1989 ; 1991 ; 1996). We simply wish to stress that this is the most important research on the question of the relations between art and stone space, a question which has been neglected by the majority of the archaeologists who have worked on the subject. The plastic art forms a seperate category on the iconographic and stylistic levels, nevertheless it shows how much Irish passage tomb art is dependent on its support.
          Our wish, in the two following points, is to show that this link also exists in the traditional iconography, called « depictive art » by M. O'Sullivan (O'Sullivan 1986), and formed by the geometrical signs on which focuses this dissertation.

5.1.2. Recurrent locations of single signs

5.1.2.1. Arcs of type 2b in top position
          Eleven stones show an arc sign of type 2b carved in top position (figure 5.1). The sign, open towards the ground, is generally carved against the upper edge or arris of the stone. On orthostat 25 of Knowth East, the carved arc fits the upper contour of the stone. On four kerbstones in Knowth and Newgrange, the sign is centered and carved just under the upper limit of the main face (Kh.K67 ; Kh.K97 ; Ng.K4 ; Ng.K52). A similar arrangement can be seen on orthostat C9 in Loughcrew L. In Loughcrew tomb T, sillstones 1 and 3 show an arc sign on the top of their front face and, in the first case, the sign reproduces the shape of the rounded top of the stone. In the same tomb, orthostat C2 shows a sign composed of two boxed arcs carved just below

a significant arris which cuts the upper face of the stone from its main face. Finally, on orthostat C8 (backstone), an arc sign was carved on the top side of the stone, repeating thus the theme carved on the two sillstones which precede it in the axis of the tomb.

5.1.2.2. Arcs of type 4 in lowermost position

In Knowth, four kerbstones show an arc sign of type 4 carved in lowermost position (Kh. K10 ; Kh.K12 ; Kh.K79 ; Kh.K93 – figure 5.2). The sign is open towards the top and is found in the lowermost part of a complex composition which vary from a stone to another. Its dimensions are generally large, sometimes nearly equivalent to the total length of the stone. Only the sign carved on kerbstone 79 has small dimensions, equivalent to the other signs on the stone. Lastly it is noteworthy that on three stones a spiral is carved above the sign (Kh.K10 ; Kh.K12 ; Kh.K79).

5.1.2.3. Scalariform signs in upper limit of kerbstones

In the Boyne necropolis, four kerbstones are carved with an horizontal scalariform sign whose location corresponds to the limit between the main face and the upper side of the stone (figure 5.3). On kerbstone B in Newgrange L, the sign is carved between various arrises which separate the front face and the top face of the stone. On Dowth kerbstone 51, the sign is carved on the top edge of the main face, leaning towards the top surface. On Newgrange kerbstone 7, the axis of the scalariform sign is superimposed to the axis of the upper arris. Finally, on Knowth kerbstone 97, the sign, simply composed of three vertical lines, is carved on a small vertical surface separated from the main face by a large horizontal arris. The sign is thus on an intermediary surface between the front face and the top face.

The analogy between kerbstone B of Newgrange L and Dowth kerbstone 51 is interesting. The carved ornament of these kerbstones show indeed several similarities : an alignment of circular signs is carved horizontally across the middle of the front face ; moreover, the scalariform sign, in top position, is carved above a radiate sign. These are then two stones with a same function (kerb) and whose various signs are spatially organised in the same way. The symbolic system of these two carved objects is undeniably similar and their example shows the intentional and constructed nature of the sign arrangement in Irish passage tomb art.

5.1.3. Recurrent locations of signs combinations

5.1.3.1. Spiral(s) over chevrons on the upper part of stones

The combinations of spirals over several rows of parallel chevrons (figure 4.41) show a remarkable constancy in their location on the stones. This composition is found systematically on the upper part of elongated stones so that the spiral(s) is against the top edge and the chevrons extended between both lateral edges (KhE.RS32 ; KhE.CoF10 ; KhW.Or16 ; KhW.Or17 ; KhW.Or18 ; KhW. Or81 ; Kh17.Or15 ; ByG.C16). In most cases, the motif is the only carving of the stones. These carved stones will be more precisely examined in chapter 8.

5.1.3.2. Radiate semicircular signs of large dimension carved in central position

Knowth kerbstone 15 and the carved stone in Loughcrew X1 have a radiate semicircular

sign of unusual dimensions. The sign, turned towards the ground, covers the greatest surface of the front face (figure 5.4). On both stones are the most complex examples of radiate semicircular sign of type 2c (see figure 3.11). These kerbstones are then comparable through the form of the radiate sign, its orientation, its dimension and its location on the stone. G. Eogan stressed this analogy as an example for his ninth stylistic category intitled « prominent central motif » (Eogan 1986 : 153).

5.1.3.3. Central line, cups alignment and meandering signs

Newgrange kerbstone 52 and Knowth kerbstone 83 are carved with three motifs whose spatial organisation is identical. The set is composed of (1) a long line picked across the middle of the whole surface of the stone, (2) a meandering sign and (3) a cups alignment inserted into an oval figure which are set perpendicularly to the central line (figure 5.5).

These two stones show thus a same composition but with two different orientation since on Newgrange stone the axis of the central line is vertical while it is horizontal on Knowth kerbstone. The location of these stones is also similar since they both are on the opposite side of the entrance of a cruciform tomb. Nevertheless, only kerbstone 52 in Newgrange is exactly located in the axis of the tomb ; in Knowth, kerbstone 83 is slightly to the north of the axis formed by the two opposite tombs.

5.2. The stone relief

In the parietal art of Upper Paleolithic, the relief of the caves is often integrated as graphic or plastic element in the representations (Leroi-Gourhan 1958 ; Robert 2007). This phenomenon is less known in the Neolithic period and it has been very little studied in Irish passage tomb art. The question was examined by M. O'Sullivan whose « plastic art » is characterized by an adaptation to the contour of the stone but also to the various volumes and reliefs of its surface (O'Sullivan 1986). On Newgrange kerbstones 1, 52 and 67, and on the carved lintels in Fourknocks, the archaeologist also notices that angular signs appear on flat surfaces whereas circular signs are reproduced on convex surfaces (O'Sullivan 1986: 78; pers. comm.). A. Jones, for his part, has pointed out the recurring enhancement by picking of natural cups or their integration in complex compositions in Newgrange and Dowth (Jones 2004: 207).

The drawings made in the second half of the XXth century show many examples of integration of natural elements in graphic compositions in Irish and Welsh passage tombs. On orthostat C1 in Barclodiad y Gawres, the left part of the quadrangular sign is materialized by an arris of the stone (Shee Twohig 1981: fig. 266). In Dowth South, the carved arc on orthostate R1 enhances the contour of a natural « trough-like » depression (O'Kelly & O'Kelly 1983: 173, fig. 22). In the northern tomb of the site, orthostats L5 and C18 present a same signs arrangement: a simple circle and a scalariform sign separated by a vertical line. The latter is, in the first case, a picked line whereas on orthostat C18 it is materialized by the natural edge which separates the passage face from the chamber face (O'Kelly & O'Kelly 1983: 170, fig. 19).

Thus several isolated examples can be quoted. The aim of this chapter is not to list all individual examples but to define recurring models of relief integration. Just as we sought to inventory the recurring forms of sign combinations, the objective here is to present the recurring forms of combinations associating signs and natural lines. Lastly, this chapter on the relationship between art and relief will end with a point on the methods of three-dimensional representations.

5.2.1. <u>Recurrent models of use of relief lines</u>

5.2.1.1. Arcs in contact with a natural line

Several boxed arcs' signs are carved in contact with a natural line so that each end of the arc rests on this line. Two types of natural lines can be distinguished : the lines separating two different surfaces (edge or arris) and the lines dividing a same surface in two spaces (crack, arris).

In the first category, ten examples have been recorded (figure 5.6). On Knowth kerbstones 90, a large sign composed of eight arcs was carved against the arris separating the front face and the damaged top face. On Pierowall stone 667, in Orkney, two large, perfectly semicircular arc signs rest on two opposite edges. A similar sign appears in the same configuration on a stone reused in a stone wall in Ballinvally, in the vicinity of Loughcrew necropolis. A more little sign has been recorded in contact with the upper arris of the side of Knowth East roofstone 37. In the western tomb, corbel Co37/38 is also carved with an arc sign resting on the lower edge of its front face. Orthostat 2a in Newgrange K presents an arc sign whose both ends link the top edge to the left edge of the carved face. The western stone of Kiltierney is carved with various arc signs and three of them are in contact with or very close to its edges. The carved stone from Eday Manse in Orkney is similar to the Pierowall stone: it has an elongated shape and shows an arc sign resting on its longest edge carved beside a double spiral of type 2c. Orthostat C4 in Loughcrew L is carved with an arc sign whose one end only rests on an edge of the stone. Lastly, the carved stone from Clear Island shows a sign composed of three arcs carved in contact with one of its edge. To this list can be added a stone fragment discovered in a cist in Beoch, Ayrshire, few kilometers from the Irish Sea. The fragment is carved with several concentric arcs and with a sign composed of three arcs which rest on the longest edge of the stone (McLeod 1938). Another Scottish cist, discovered in Parkburn (Midlothian), was built with four stones on edge, one of which is carved with six boxed arcs in contact with the top edge. Nevertheless, according to the excavator, the stone could be broken and the sign may be the remnant of a late circular sign (Henshall 1966 : 211).

In the second category are several arc signs also carved in contact with a natural line of another type (figure 5.7). Orthostat R2 in Loughcrew S presents on its main face three scale-like surfaces due to a desquamation of the stone. A single arc, deeply carved and surrounded by weathered arcs, has been made on the second face in the middle of the stone : its both ends rest on the narrow top side of the lower face of the stone. On the eastern face of orthostat C2 in Loughcrew U, a sign composed of four arcs is carved just above a deep depression. In Knowth, kerbstone 78 is carved with boxed arcs resting on an important arris which cuts the top right part of the front face. In Knockroe, kerbstone 15 presents an original arc sign, carved just above a natural arris. The lintel above the final recess in Loughcrew T is carved with several arcs, two of which are on an horizontal crack of the stone. In Dowth North, the carved roofstone of the

passage presents a set of six boxed arcs whose ends rest on an arris of the main face and on an edge. The same model can be seen on orthostat R3 in Loughcrew L. It is noteworthy that these two stones have the same location in the tomb : both mark the middle of the passage. Lastly, the stone B from the Calderstones shows two arc signs on both sides of an important crack.

More than 20 examples show the existence of a recurrent graphic model based on an arc sign resting on a natural line. This model also exists in Gavrinis passage tomb, in Brittany, where two arcs are carved above a large natural crack on the top left part of orthostat C1 (Shee Twohig 1981 : fig. 119). In this tomb, boxed arcs signs are in great number and, interestingly enough, most of them are « closed » by a picked horizontal line on which they rest (orthostats R4, R5, R8, R9, R10, R12, L4, L5, L6, L7, L8, L10, L11, C2, C3, C4; Shee Twohig 1981: figs 110-20). The theme is then identical, only the mode of representation is different : natural line in one case, picked line in the other case. The use of an artificial line is also known in Ireland, on orthostat 54 in Knowth eastern tomb where four arc signs rest on two long and parallel incised lines (Eogan 1986: fig. 61). Besides, this graphic model is frequent in the ornament of Castellic ceramics in Brittany (Cassen 2000a) and it appears also on two funerary vessels discovered in Achnacreebeag passage tomb in Scotland (Ritchie 1970) and in Ballymacaldrack court tomb in Ireland (Collins 1976), two tombs geographically associated to the Irish Sea (figure 5.8). On these ceramics, the arc signs also rest on an arris between two faces, formed by the carina.

5.2.1.2. Meandering signs carved along a natural line

Another sign of the Irish repertoire is frequently associated to natural lines of the stone. The meandering sign is often carved along an arris or a crack (figure 5.9). On Newgrange kerbstones 2, 16 and 52, a meandering sign is carved above and along the arris which separates the front face from the top face of the stones. On the loose stone discovered in Loughcrew I and on Knowth East corbel Co40-5, a meandering line runs along an arris which extends across the main face of the stone. The two carved stones discovered in Ardmulchan present two picked signs and one incised sign related to their edges. In tomb 14 in Knowth necropolis, orthostat 8 is carved with various meandering signs, two of which are closely related to the arris which separates the main face and the south side of the stone. On Knowth kerb, two large meandering signs are carved along the top edge of stones 4 and 91. Lastly, on orthostat R2 in Dowth South and on orthostat 38 in Knowth West, the sign appears on the lower right part of the stone where it is associated with the arris separating the main face and the side face.

The slender form of the meandering sign fits well the narrow and elongated space of various stones sides. A sign carved in this space is then associated to two parallel edges (figure 5.10). Such configuration can be seen on the side of four orthostats (LcH.C14 ; LcR2 ; LcU.C9 ; NgK.5b), on the side of a corbel stone (LcT.Co1/C2) and on the side of a loose stone (Kh.loose9).

5.2.1.3. Ramiform motifs on a horizontal natural line

In Irish Sea passage tomb art, several single chevrons can be combined and linked together with a central line (see chapter 4.3.3). The motif can be termed as « ramiform » because of its reminiscence of a vegetal, especially when the length of the chevron increases or decreases gradually

and symmetrically. This figure is rare and is, in three cases, associated with an horizontal natural line on which it rests in a vertical position (figure 5.11). So, amongst the various incised lines made on the right part of corbel Co37/38 in Knowth West, can be distinguished a vertical ramiform motif whose base is in contact with two horizontal arrises. On the back face of Newgrange kerbstone 4, the motif rests on a reflex arris under which is an original motif formed by a spiral enclosed in a crescent-shaped motif. An identical composition appears on kerbstone 51 where a ramiform sign is separated from a spiral and crescent motif by the arris between the main face and the top face of the stone.

It is interesting to make an analogy with Brittany where the ramiform motif, also very rare, shows the same relation with stone relief. On Guib stele, discovered and recorded in the end of the 1990s (Cassen 2000), the motif is carved just above an horizontal line of relief. On orthostat 3 in the Table des Marchands passage tomb, a ramiform motif is also carved above a significant arris under which appears a meandering sign. Both motifs are separated by a line of relief and the distinction is stressed by the difference of depth of the surface on which they are respectively carved. This model can also be recognised on Newgrange kerbstone 51 where the ramiform motif is carved above a meandering sign as well as on a decorated vessel found in Lannec er Gadouer[1] long barrow (Cassen 2000).

Here again, several representations of a same, very constructed theme can be found in Brittany and in Ireland. An interesting difference between both regions is in the opposite direction of the « branches » of the ramiform motif : they are indeed directed downwards in Ireland whereas the are directed upwards in Brittany.

5.2.2. Three-dimensional modelling from digital photographs : a relevant tool of representation ?

After a description of the technical aspects of the method in chapter 1.3.2, we will focus here on its scientific interest. The use of three-dimensional technologies has been very developed in the last ten years. In the field of Neolithic monumental archaeology, several tools have been used like digital photogrammetry or laser scanning (Cassen & Merheb 2005 ; Cassen *et al.* 2006). Within the framework of this thesis research, a software of three-dimensional modelling from digital photographs (Realviz ImageModeler) has been applied to carved stones in Irish and Breton passage tombs. This work is not particularly innovative since a similar software has been tested by a team from Durham University on a British rock art site (Simpson *et al.* 2004).

It is important to specify the type of use for which this three-dimensional technology must be intended. Indeed, in the case of carved stones, this tool could not be used as a recording instrument. The identification of carvings and their accurate recording can be made only with oblique lightening and photographs and not with a three-dimensional modelling tool whose function is not to make visible the invisible (see the experiment carried out unsuccessfully on stele 11 in Castlerig stone circle – Díaz-Andreu *et al.* 2006).

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[1] T. Darvill (2001 : 54-5) made the analogy between the ornament on Lannec er Gadouer vessel and the carvings on Newgrange kerbstones 4 and 51. I thank him very kindly for making me aware of this work.

Three-dimensional technology applied to carved stones must not be considered as an investigation tool but as a representation tool. It is not a research instrument but a means to pass on the results of a research. On the other hand, such technologies, applied to other objects like complex architectures or excavation sites (particularly laser scanning), are absolutely relevant as recording techniques (for a recent example see : Katsianis *et al.* 2008).

The research carried out on the relations between carvings and stone relief has given several results that are not well illustrated by usual planimetrical representations. For example, in the case of the arcs carved against a line of relief, only a description of the drawing can allow understanding of the volumes and reliefs. Is the arc carved above a concave or a convex relief ? Is the arris salient or reflex ? Quite often a plan and a section of the stone do not reproduce accurately enough the details and the nuances of a complex relief. Two case studies have been done in order to appreciate the advantages and disadvantages of the software.

The first experiment was made in Brittany on orthostat 19 in Mané Kerioned tomb B (figure 5.12). On this orthostat the carvings are organised around a large central bump whose volume and reliefs are not well reproduced in traditional planimetric drawings. Several shots were made from four different stations and with direct and oblique lights. The whole main face (the only visible part of the stone) was modeled and two types of texture were extracted from the photographs : one model with direct light and one model with oblique lights in order to enhance the carvings.

The second experiment was carried out on a smaller surface (figure 5.13). Orthostat C2 in Loughcrew U presents an arc sign carved in the lower part of its eastern face. The sign is on a surface delimited at the bottom and on the right by two significant arrises (see above). The carved surface was shot from six different stations in daylight. The texture of the model was extracted from the photographs used for the modelling and on which the carvings were previously coloured red in order to make them more visible.

After these experiments, the three-dimensional modelling from digital photographs seems to be a good additional tool to classical planimetric representations. The easiness of use of the software and the small amount of equipment required for fieldwork make its application interesting for archaeologists. To illustrate the relations between artwork and stone relief, it is a relevant tool because it is the best way to reproduce the complex volumes of a stone surface. One can however regret that 3D pictures do not fit paper support which is still, and rightly so, the main media of scientific communication.

5.3. Conclusion : the importance of the stone microtopography

The analysis of the relations between the iconography and the physical shapes of the stone reveals the importance attached to the immediate context of the carved signs. Thus the stones are not simple support but real actors intervening in the game of the representations. First of all, the recurrent locations of the signs on such and such face or such and such part of the stones demonstrate that the latter are regarded as carved objects, in the same way as a decorated vessel, and not as simple wall elements deprived of identity. Moreover, the close relations between the signs and the lines of relief of the stone show that the carved figures are deployed in precise three-dimensional frame and that they are organized according to it.

It is difficult to know which of the sign or the stone is determining. Is the sign which is adapted to the stone or is the stone which is selected according to a predetermined representation? Perhaps the carvings and their support adapt one to the other according to the characteristics of each one and according to the perception that has the carver of these two combined objects. In all cases, it appear from this study that the analysis of the carvings cannot be done without taking into account the forms and reliefs of the stone. This essential feature of parietal art must then guide our observation and recordings of the carvings.

The spatial organization of the carved signs is not limited to the stone space. Our analysis continues now with the study of the relations between the iconography and the architecture of the passage tombs.

Chapter 6
Spatial organisation of the signs on the monument scale

The basic elements of Irish parietal art are spatially organized on three different scales: on the absolute scale (combinations of signs – chapter 4), on the stones scale (chapter 5) and finally on the monuments scale (chapter 6). The architecture of Irish passage tombs is one of the most complex of Neolithic Europe. Besides an exacerbated monumentality, these structures have several differentiated elements whose precise organization shows a particular concept of funerary space.

At the origin of this chapter is a question: is there a link between the organization of architecture and the organization of the iconography? Several axes of research were followed to answer this question:

(1) How has the question of the relations between art and architecture been approached by the previous authors ?

(2) How can a statistical analysis reveal an organisation of the signs in the monuments ?

(3) How can a careful observation of the recurring motifs (single signs and signs combinations) in their architectural context identify regularities in their location ?

The spatial organization of the signs on the monument scale will be considered in six points. The first one consists of a historiographic study of the question, from G. Coffey to E. Shee Twohig. The second one proposes a statistical analysis of the problem. Then, the third, fourth, fifth and sixth points of this chapter will present several case studies showing a precise organization of the iconography according to the kerb, the axis of the monument, the internal limits of the tomb and finally the recesses.

6.1. The relations between parietal art and architecture : history of a theme of research

The parietal art and the architecture of passage tombs are two symbolic constructions superimposed to make a single coherent system. However, the majority of the studies on the subject dissociate the two phenomena: art is generally regarded as an independent unit, linked certainly to the funerary function of the monument but not particularly to its architecture. The interest is primarily pointed to the forms of the carvings and their possible meaning, but their organization in the tomb space is a relatively little adressed question. This historiographic chapter try to make an inventory of the research and reflexions on the relations between parietal art and architecture around the Irish Sea.

The first archaeologist who pointed out the link between art and architecture was G. Coffey. In his work devoted to the tumulus of Newgrange, the archaeologist noticed that the lintels carved with chevrons and/or triangles are located above the entrances to the passage, chamber or side recesses. He thus described these distinguishing marks as « saltire or gate patterns », terms not insignificant which specifies the form as well as the architectonic function of the motif (Coffey 1912: 71-2).

After G. Coffey, the question of the relations between the artwork and its support was let aside. Whereas in France, R. Minot established an « ideal dolmen » (after Leroi-Gourhan's model) with the most frequent position of the signs inside the tombs in Morbihan (Minot 1965), the subject was not approached again in Ireland until the last quarter of the 20th century and the excavations in the Boyne necropolises. Thus, in 1973, C. O'Kelly distinguished an « official art », carved on the visible parts of the architecture, from a « hidden art », discovered during the excavations. The distinction lies in the location of the carvings but also, according to her, in the repertoire of motifs: whereas the official art is composed primarily of lozenges, triangles, chevrons and spirals, the hidden art prefers circles and meandering lines (O'Kelly 1973: 363-4).

The discovery of the tombs and kerbstones of Knowth 1 considerably changed the knowledge on Irish parietal art. In charge of the excavations of this huge site, G. Eogan was much interested in the relations between the iconography and the structures of the tombs and remains today the author who treated the most that question. In the first synthesis on the monument, the archaeologist pointed out certain trends in the spatial organization of the signs. He thus noticed a difference in graphic style between the carving located inside the tombs and those located outside, on the kerb (Eogan 1986: 165). G. Eogan also underlined the similar position of the lintels carved with chevrons in Newgrange, Knowth East and Fourknocks (fig. 73, p. 182).

In a paper on diffuse picking, the archaeologist noted that the technique is concentrated on certain parts of the tombs such as the inner part of the passage or the recesses. Other interesting remark, the capstones located above the two sillstones laid across the passage in Knowth East are carved with several sets of parallel chevrons (Eogan 1990: 122-4).

In a comparative analysis between the passage tombs in Ireland and Scotland, G. Eogan stressed that the stones with diffuse picking inside the tomb of Maes Howe (Orkney) frame the entrances to the chamber and to the three recesses (Eogan 1992: 123).

In the Nantes conference (1995), the archaeologist recognized various structures in the signs organization in the tombs and on the kerb of Knowth (Eogan 1996). He thus pointed out the link between the entrance of the tombs and the kerbstones marked with a vertical central line: kerbstone 1 marks the entrance to satellite tomb 16, kerbstone 11 marks the entrance to the eastern tomb whereas kerbstone 74 marks the entrance to the western tomb (see also Eogan 1978; Eogan 1986: 169-70). The same relation is noted in Newgrange and Dowth where kerbstones marked with a vertical central line are set in front of the tomb entrance or on the opposite side. The author also pointed out that the carved stone of Lyles Hill megalithic enclosure, resembling a sillstone framed by two jambstones, presents a vertical central band.

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Besides, G. Eogan noticed that the large boxed arcs on kerbstone 74 are reproduced on a sillstone inside the western tomb and on the backstone: the same motif is thus repeated on one axis.

Lastly, the archaeologist analyzes the parietal art of the kerb and distinguishes six distinct sets, made by several joint carved stones, delimited at each end by one or more undecorated stones of a different geological composition. These sets, or « panels », are located in a significant position, at the entrance to the tombs of the main tumulus or in front of satellite tombs entrance.

M. O'Sullivan recorded and analysed Knowth carvings and was also interested in the relations between the parietal art and the architecture of the monument. In the western tomb, the archaeologist thus noticed a stylistic difference between the carvings located on the right part and those located on the left part of the passage: the first are composed of long carved lines whereas the second are characterized by large picked areas (O'Sullivan 1986: 75).

M. O'Sullivan also proposes to see a relation between anthropomorphic representations and certain structures marking the junction between two spaces in the tombs (O'Sullivan 1986: 81; 1996: 92-4). This hypothesis remains nevertheless criticizable because the refered figures (KhW.Or49; KhE. Or69; Ng.L19) are not one precise motif but similar combinations of different signs interpreted as schematic representations of human faces. Thus one cannot see here a relation between a specific motif and an architectural element.

In Knockroe, the archaeologist also underlines a spatial organization of the carvings. The eastern tomb is distinguished from the whole site by a repertoire exclusively limited to circles. In the western tomb, several stones set on opposite sides in the passage present a similar iconography, forming thus successive pairs and making a certain symmetry in the whole decoration of the tomb (O'Sullivan 1997: 31-3).

The question of the relations between art and architecture has also been approached by other Irish and British archaeologists. In 1992, J. Thomas proposes a new approach of Loughcrew parietal art by considering it not as a sum of distinct elements but as a homogeneous symbolic system associated to the architectural structure of the tomb: « […] these symbols might be expected to be part of the system of signification embodied in the tomb. As very explicitly symbolic media, they would contribute to the production of a 'reading' of the tomb space » (Thomas 1992: 146). The archaeologist distinguishes in the Irish necropolis two types of carved compositions: those using simple signs (cupmarks, spirals, meandering lines) and those using complex signs (concentric circles, boxed lozenges). These two sets also present different spatial distributions since the first one is mainly distributed in the passage of the tombs whereas the second one is more frequently carved in the chambers. As explained by J. Thomas, the density of the carvings increases as one penetrates deeper into the tomb, which limits their access to a small number of persons who would have constituted an elite within the group (Thomas 1992: 149). Parietal art is thus associated with the configuration of the space of the tombs, a space determined by a precise ritual reflecting the hierarchical structure of the Irish Neolithic society.

J. Thomas' model and its « contextual » approach marked a change in the manner of approaching parietal art and left an definite influence (Shee Twohig 1996: 73; Cochrane 2005 ;

Nash 2006). However, the relations between architecture and iconography is not really clear. The criteria used (complexity of the compositions, density of carvings) make it possible to note certain general tendencies on the carvings location, but the precise distribution of the various signs is not approached.

Based on J. Thomas' approach, E. Shee Twohig gave in the Nantes conference a more precise study on the spatial organization of Loughcrew carvings (Shee Twohig 1996). The aim of the paper is to analyze, tomb after tomb, the relations between parietal art and architecture. The archaeologist describes the main characteristics which mark the distribution of the signs in tombs T, U, L, I, and H. In tomb T, identical signs are facing each other on both sides of the passage. In the partitioned tomb L, the central recess on each side of the chamber is enhanced by carvings. The repertoire in tomb I is characterized by a great number of radiate signs. Although each tomb presents a particular system, certain common rules arise from the study such as the concentration of signs in the right part of the tombs (tombs U, L and H) or the dominant presence of circular signs in left side recesses (tombs T and H). In another paper devoted to the chronology of the parietal art in the Boyne valley, E. Shee Twohig comments on the position of orthostats R12 and R21 in Newgrange passage. These two stones present the same decoration, made of deep horizontal parallel bands, and are interpreted as « junction-stones »: indeed, the first one is located between the outer part and the inner part of the passage whereas the second one marks the junction between the passage and the chamber (Shee Twohig 2000: 94-5).

J. Dronfield applied to Irish Neolithic parietal art the « neuropsychological » theories developed by J.D. Lewis-Williams and T.A. Dowson (see chapter 1.3.4). In an article published in the *Cambridge Journal of Archaeology*, the archaeologist approached the question of the relations between the form of the carved signs and their location in the tombs (Dronfield 1996b). According to the idea of the paper, the passage which separates the funerary chamber from the external world has the function to cause a feeling of « tunnel » similar to the one experienced during an altered state of consciousness. Parietal art would take part in this function with a high density of concentric circular signs and spirals (signs representing and causing a feeling of « tunnel ») in the passage of Newgrange, Knowth and Loughcrew tombs. Angular carvings (chevrons, lozenges, triangles), on the other hand, are mainly laid out in the chambers and would be, according to J. Dronfield, associated with the funerary deposits.

This model of spatial distribution of the signs seems too simple to work. As specified by G. Cooney who commented the paper, the spirals and chevrons are often associated on the same stones so both signs cannot be ascribed to two distinct parts of the architecture (Cooney 1996b). Moreover, most of the argumentation rests on statistical analyses and not on a direct observation of the carvings nor on a direct demonstration by the carvings. If the model is based on some isolated examples, many counterexamples can contradict it.

Amongst his many works, R. Bradley gave several ideas about the spatial organization of the carvings in Irish passage tombs. In 1988, the archaeologist tried a study on the layout of the carvings inside Breton, Irish and Iberian tombs according to the natural lighting (Bradley 1988). The analysis,

as its author recognizes it, is not very conclusive and, concerning Ireland, certain contradictions appear: for example, whereas the carvings in Loughcrew I are mainly in the shade, the carvings in tomb T are mainly lit directly by the light coming from the entrance.

In other works, R. Bradley distinguishes the iconography located inside the tombs from the one located on the kerb: the first one is composed mainly of circular signs, in a register close to British rock art, whereas the second one is composed of varied signs, angular and circular (Bradley 1997: 124; 1999: 32-3). The idea, also proposed by E. Evans (2004: 51-4), was notably criticized by E. Shee Twohig for whom a large variety of signs also exists on the kerb of the Boyne tombs (Shee Twohig 2000: 98).

After a fieldwork in Orkney's passage tombs, R. Bradley and his team noted that incised carvings are concentrated on lintels and sillstones which mark the entrance to the chambers and side recesses (Bradley *et al.* 2000). In addition, the authors underline an emphasis on the right side in Maeshowe passage tomb and in Dwarfie Stone hypogeum, a phenomenon also known in Ireland.

The question of the relations between parietal art and architecture is a relatively recent research topic since it developed in the 1990's. Several authors and archaeologists became interested and offered various, and more or less well argued, ideas,. Amongst the recognized facts, we can keep two important characteristics noticeable in several monuments and in several areas around the Irish Sea. Firstly, by its iconographic choices or its exclusive locations, parietal art enhances the various thresholds and structures of transition inside the tombs. Secondly, the right side of architecture is prefered by the carvings.

Are these phenomena, on which several archaeologists agree, marginal aspects or true characteristics of the spatial organization of the signs? The statistical study which follows proposes to measure these assumptions and to search for other general characteristics.

6.2. Statistical analysis of the signs location

Before a presentation of precise examples of spatial organization of the iconography, we propose a statistical study in order to determine certain general characteristics and to check the hypothesis described in the previous chapter. Such an analysis, based on all of the Irish monuments, has not been done until now. One can however quote the study of J. Thomas on Loughcrew monuments in which he created a statistical system established on different criteria allowing him to draw up a spatial model of distribution of the carvings (Thomas 1992).

For the purpose of the present study, an abstract model of a passage tomb has been created to represent and distinguish the various spaces receiving carvings: the kerb, the passage, the chamber and the recesses. There are several types of passage tombs and they do not all have the same plan. We however chose to take as reference the cruciform type which synthesizes at the best the different spatial models of the tombs. In each study proposed below, the modes of calculation used will be specified.

First will be analysed the distribution of the carvings in the tombs, i.e. the proportion of the carved surfaces inside these monuments. Then we will focus on the distribution of each sign in the different spaces of the architecture. Lastly will be pointed out the scientific limits of the statistical analysis in the examination of the spatial organization of the signs.

6.2.1. <u>The location of carved surfaces in the tomb</u>

The present study on the location of carvings in the tomb has been limited to the internal spaces of the monument (passage, chamber and recesses) without including the kerb since only a few sites present carvings on the tumulus wall and several carved kerbstones in Newgrange and Dowth have not been recorded (Shee Twohig 2000: 97). In order to analyze the spatial distribution of the carvings in passage tombs, an abstract model of six areas has been made (figures 6.1 and 6.2). These areas are the distinct spaces of the tomb interior and present several walls:

- Outer passage : entrance sillstone, right wall, left wall, capstones.
- Inner passage : entrance sillstone, right wall, left wall, capstones.
- Chamber : entrance sillstone, right wall, left wall, capstones.
- Left side recess : entrance sillstone or lintel, right wall, left wall, back wall, capstones.
- Right side recess : entrance sillstone or lintel, right wall, left wall, back wall, capstones.
- Final recess : entrance sillstone or lintel, right wall, left wall, back wall, capstones.

The passage tomb of the model is thus composed of 27 different walls. In real tombs, these walls are made of one or more stones. The mode of calculation used to evaluate the proportion of carved surface is based on the number of carved stones composing the wall: if the wall is made of only one carved stone, its rate of carved surface is 100%; if it is made of five stones of which 2 have carvings, its rate of carved surface is 40%. This criterion presents an obvious limit since, on the one hand, it does not regard the density of carvings on the stones, and on the other hand it is based on the number of carved stones and not on the real surface covered by the carvings. Nevertheless, the purpose of the study is not to establish precise data but to establish indications with an informative

aim, revealing the tendencies more than the exact proportions.

Thirty passage tombs were used as references for the study: Baltinglass II, Bryn Celli Ddu, Carnanmore, Cloverhill, Dowth North, Dowth South, Fourknocks, Knockmany, Knockroe West, Knowth East, Knowth West, Knowth 2, Knowth 14, Knowth 15, Knowth 16, Knowth 17, Knowth 18, Loughcrew F, Loughcrew H, Loughcrew I, Loughcrew L, Loughcrew S, Loughcrew T, Loughcrew U, Loughcrew V, Loughcrew W, Newgrange, Newgrange K, Newgrange L, Sess Kilgreen. Some of these tombs are partly destroyed and several are not organized according to a cruciform plan; thus the majority inform about one part only of the established spatial model. Nevertheless, the data collected is sufficient to establish a synthesis and to obtain some interesting results.

The study confirms certain remarks proposed by various archaeologists. Firstly, the density of the carvings increases gradually as one penetrates into the tomb: 15% of the outer passage surface is carved, 23% in the inner passage, 25% in the chamber and 30% to 43% in the recesses. Secondly, the proportion of carved surface is higher in the right part of the tomb than in the left part. This opposition, quite weak in the corridor and in the chamber, is especially noticeable between both side recesses: 30% of the surface is carved in the left recess against 43% in the right recess. Moreover, no sillstone in the left recesses has carvings whereas the sillstones in the right recesses are on average carved on 45% of their surface. An identical contrast is noticeable in the capstones of these two side spaces (0% against 20%). In addition, the study reveals that inside the tombs, the most carved surfaces are the walls of the side recesses located towards the entrance of the tomb, i.e. the left wall of the left recess (64%) and the right wall of the right recess (63%).

6.2.2. The location of the signs in the tomb

The data base created for this thesis work gathers all the signs carved on the 635 stones examined. Although a certain number of these stones are extracted today from their original context, the majority of them are still in initial position and their architectural function is known. Thus, with the data base, it is possible to calculate the rate of distribution of each sign inside the different spaces of the tomb. For this study, another model of a tomb has been created. This model distinguishes six distinct spaces: the kerb, the passage, the chamber, the left side recess(es), the right side recess(es) and the final recess (figure 6.3).

The results obtained have been represented in graphs with vertical bars and give interesting results. It appears indeed that each sign of the repertoire has a specific spatial distribution. Thus, some contrasts can be underlined: whereas certain signs (meandering lines, spirals, arcs, circles) are carved mostly in the « outer » parts of the tombs (kerb and passage), other motifs (radiate circular signs, scalariform signs) seem to be prefered in the deeper spaces of the architecture (chamber and recess). In addition, it is interesting to note the spatial opposition between the two types of radiate signs: whereas the radiate circular signs are mainly located in the left half of the tombs, the radiate semicircular signs are proportionally in greater number in the right half.

6.2.3. The limits of the statistical approach

Whatever the subject or the question, statistic tools can only bring a limited answer. This does not mean that they should be rejected – the information that they produce are useful and interesting - but that they must be regarded as accessory. The studies proposed above have a certain interest since they provide general indications on the spatial distribution of the carvings in passage tombs. Nevertheless, their results as well as their methods of calculation remain too vague and abstract to constitute a rigorous analysis of the question.

In the present study on the spatial organization of the signs, it is thus important to consider the statistical approach as a first stage. In the next parts of this chapter, we will focus on specific case studies, described and illustrated with precise examples which will allow to show certain « rules » in the signs grammar and thus to affirm the organized nature of Irish parietal art.

6.3. The kerb

The presence of carving on the external wall of the cairn is one of the original characteristics of Irish parietal art. However, this feature is not systematic in passage tombs and is limited to the greatest monuments. Only 18 out of 50 tumuli have carved signs on the kerb: Baltinglass, Dowth, Knockroe, Knowth, Knowth 2, Knowth 3, Knowth 5, Knowth 8, Knowth 12, Knowth 13, Knowth 14, Knowth 15, Loughcrew H, Loughcrew T, Millin Bay, Newgrange, Newgrange K, Newgrange L.

We will not point out here the stylistic characteristics which distinguish the kerb art from the inner tomb art (see sections 1.2.3 and 6.1). Our goal is to show now the regularities occuring in the spatial organization of certain signs or combinations of signs on this external wall. Three case studies, taken in the Boyne and Loughcrew necropolises, will be analyzed successively.

6.3.1. Combination of spiral and chevrons in the eastern part of the kerb

Four kerbstones in Knowth (Kh.K5 ; Kh.K10 ; Kh.K15 ; Kh.K127), one kerbstone in Newgrange (Ng.K85) and one kerbstone in Knockroe (Kr.K26) have a same combination of signs (figure 6.4). This combination is composed by a single spiral associated with several parallel lines of chevrons. Besides their graphic form, several spatial criteria characterize these figures :
- In the three monuments, the motif is carved exclusively on the eastern part of the kerb.
- Most of these figures were carved on the side face of the stones and not on their front face. The side face is mainly the top one (Kh.K127 ; Kh.K5 ; Ng.K85) but one lateral side is also known (Kh.K15).
- Newgrange kerbstone 85 and Knowth kerbstone K15 show the same complex motif (spiral, chevrons and lozenge) and are located exactly in the same position in the oriented kerb circle of these monuments.
- In Knowth, the four kerbstones carved with the motif are spaced out in a perfectly regular way since every stone is separated by four kerbstones (kerbstone 127 is the last element of the kerb, seperated from kerbstone 1 by satellite tomb 16 which is integrated into the main

tumulus).

- In Knowth, the lines of chevrons in the motif are directed towards the entrance of the eastern tomb, i.e. to the left on kerbstones K127, K5 and K10, and to the right on K15.

The motif, formed by a combination of a spiral and several chevrons, has not been recorded in other sites or on other stones (the ambiguous composition carved on the side face of Knowth kerbstone 41 is let aside here - see figure 4.40). Its precise and regular spatial organization on Knowth, Newgrange and Knockroe kerbs indicates a function or a particular symbolism in which take part the shape of the stones (motif on top face or side face) and their location in the eastern wall of the monuments.

6.3.2. Pairs of opposed arcs on Knowth kerb

The combinations of arcs opposed by their open side have already been studied in section 4.3.2.3. We wish here to draw attention to the spatial distribution of this motif on Knowth kerb. Indeed, two groups of motifs can be distinguished, each one presenting a different orientation in space as well as a different location in the monument (figure 6.5).

The first group is composed by the arcs opposed in a vertical axis. Such representations are carved on kerbstones 65, 80, 83 and 86, all located on the western part of the monument. The second group is represented by kerbstone 30, located on the south-eastern part of the monument and whose main face is carved with two arcs opposed in a horizontal axis. The motif in opposed arcs is thus laid out in a different direction according to its location in the eastern or western half of Knowth tumulus. This east-west opposition is not meaningless here since the monument is structured on an opposition between an eastern tomb and a western tomb.

6.3.3. Scalariform sign and kerb

The scalariform signs carved on the kerb of the monuments present an interesting spatial organization. On the stone scale, we have seen above that the sign is carved horizontally along the top edge of the kerbstones (see section 5.1.2.3) except on Knowth kerbstone 4 where the sign is associated with the lower limit of the stone (horizontal edge corresponding to the limit of the ground), and on kerbstone 8 in Loughcrew H where the sign is carved on the side face and is set vertically, parallel to the right edge of this face.

On the monument scale, the sign has certain regularities in its location relating to the tombs. Newgrange kerbstone 7 and Knowth kerbstone 4 are at a comparable distance to the entrance of the cruciform tomb in each monument (figure 6.6). Knowth kerbstone 79 and Dowth kerbstone 51 present a similar layout: both are located on the opposite side of the cruciform tomb, slightly on the right of the axis formed by this tomb.

In Newgrange L and Loughcrew H, the comparison is also interesting (figure 6.7). Both monuments have a kerbstone marked with a scalariform sign whose location, relating to the internal tomb, is identical. Apart from the iconography, these two tombs share an architectural characteristic since the plan of the tomb is cruciform. Lastly, their location in the necropolis is comparable: two satellite tombs located east of the central tomb dominating the group (Newgrange and Loughcrew L).

6.4. The tomb axis

The passage tombs are composed of a circular cairn and a tomb whose shape is more or less linear. Whatever its plan, this internal structure is organized according to an invisible axis starting from the center of the entrance kerbstone, going across the passage and cutting the backstone at the end of the tomb. This virtual axis goes on beyond the tomb, across the whole cairn and defines the symmetry of the monumental structure. Thus, the axis is the spinal column of the monument, its « cardo »: all the architecture is organized on this central line.

The objective of this chapter is to show that parietal art, as architecture, is structured by this axis. The axis organizes a certain number of signs inside the tombs but also on the kerb. Through several precise examples we will see that two organisational principles are determined by the axis of the tomb: firstly the axis *orientates* the iconography, and secondly it *partitions* it into two opposite sets.

6.4.1. <u>An axis of orientation</u>

6.4.1.1. The axis represented by a carved vertical central line

In Newgrange, Knowth and Lyles Hill, the kerbstone marking the entrance into the tomb or into the enclosure is carved with a vertical central line (figure 6.8). This association between carving and architectural function has been already underlined on several occasions by G. Eogan (Eogan 1978; 1986; 1996). However, rather than to indicate the entrance of the tombs, this vertical central line can be regarded as a representation of the axis of the monument. This could explain the location of the motif on Newgrange kerbstone 52 which does not indicate any tomb entrance[1] but which is on the opposite side of kerbstone K1, in the axis of the tomb. J. McMann interpreted in this way these linear carvings, associated for her with a great axis going across the monuments of Knowth and Newgrange (McMann 1996: 535).

Outside Newgrange, other kerbstones located at the opposite side of a tomb are distinguished in the kerb by their iconography. In Knockroe, the decoration of the kerb is limited to a group of seven adjoining stones located in the southern part of the monument (kerbstones K26 to K32). Other than this group, only one isolated kerbstone is marked by carvings: the stone (kerbstone K15) is in the axis of the western tomb, on the opposite side of its entrance (figure 6.9).

In the North-East of England, the megalithic enclosure of Castlerigg is marked by various carved signs. The main part of the carvings is in the eastern half of the stone circle (steles 5, 10 and 11), where is also a quadrangular structure also formed by standing stones. Only one carved sign is set appart in the western part, on stele 27 which is on the opposite side of the quadrangular structure, exactly in the axis of its northern edge.

Outside the Irish Sea, another interesting parallel can be made with Dombate passage tomb in Galicia. On the walls of the main tomb, the iconography is limited to painted diagonal bands

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[1] The excavations of M. O'Kelly explored the part of the cairn located behind kerbstone K52 flagstone, looking for a possible second tomb. Cut across more than 7 meters, the trench did not reveal any megalithic structure (O' Kelly 1982: 65, 71, 91).

organized in net motifs. Only the backstone of the chamber, of monumental size, is distinguished by a vertical band, thicker than the others (Bello Dieguez 1996). The backstone being in the prolongation of the passage, we find here an association between the axis of the tomb and the representation of a vertical band.

6.4.1.2. Lines of single arcs oriented in the tomb axis

The motif composed of an alignment of several single arcs has been described in section 4.3.2.1. This particular figure is carved horizontally or vertically and on vertical surfaces as well as on horizontal surfaces ; its orientation is thus varied. However an analysis of the spatial context of the stones on which it appears reveals that the motif is systematically oriented in the axis of the tomb.

In Carnanmore, three aligned arcs are carved on the top face of a roofstone resting on the back wall of the chamber. The axis of the tomb corresponds to the axis of the motif (figure 6.10). The same system can be seen in the western tomb of Knockroe cairn where a large roofstone was unearthed during the excavations. On the upper face of this stone, two parallel lines of arcs are carved in the length of the stone which was originally placed in the axis of the monument (figure 6.11).

In Loughcrew tomb F, the backstone presents on top of its front face several single arcs laid out in a vertical alignment corresponding to the axis of the monument (figure 6.12). On orthostat C1 in the same tomb, eight vertical lines of arcs are carved. This stone is directed perpendicularly in the axis of the tomb, though the motifs are in the same orientation than on the backstone.

In Knowth, five kerbstones have motifs in arcs alignment (K11, K29, K52, K76, K93). The orientation of the figure is horizontal or vertical according to the position of the stones so as to be aligned in the axis formed by the two opposite tombs of the monument. Thus, the motif is vertical on kerbstones K11 and K76 which are set perpendicularly to the axis of the monument. On the other hand, the motif is horizontal on kerbstones K29, K52 and K93 which are placed more or less in parallel to the axis of the tombs (figure 6.13).

The drawing of the plan of the monument allows to realize how much the central axis was essential in the making of the architecture. Indeed, the line passing through kerbstones K1 and K76 cuts the backstone of the eastern tomb exactly in the middle. These three stones are thus in perfect alignment. Moreover, the distance between Knowth East backstone and both kerbstones is exactly the same (42 meters), so the three stones make an alignment of three perfectly equidistant points. In addition, the axis formed by kerbstones K29 and K52 (carved with the arcs alignment motif) are perfectly parallel to the axis of the tombs and is located exactly 42 meters away from the sillstone of the southern recess. Is such perfection in the layout of the stones the result of chance or is it the result of a rigorous knowledge at the service of a precise and complex symbolic system?

The motif in single arcs alignment has not been recorded on other stones. Knowth kerbstone 32 and the orthostate R2 in Loughcrew F have the representation of two arcs superimposed in a curved axis (see figure 4.11). Their orientation is not clear but it appears more horizontal than vertical, therefore in accordance with the axis of the monument since these two stones are placed in parallel to it.

6.4.1.3. Boxed arcs motif repeated along the axis

In certain monuments, a particular motif can be repeated on several stones aligned in the axis of the tomb and set perpendicularly to it. In Loughcrew tomb T, sillstone 1 (between the passage and the chamber), sillstone 3 (between the chamber and the final recess) and orthostat C8 (backstone of the final recess) are aligned in the axis of the chamber (figure 6.14). These three stones are marked with boxed arcs (type 1b) carved in uppermost position (on top side on orthostate C8). Moreover, sillstone 3 and orthostat C8 present radiate circular signs very similar in shape. Iconographic forms and position of the signs are here common features to three stones laid out in the same axis of a tomb.

In Knowth, the eastern and western tombs show the same characteristic (figure 6.15). As pointed out by G. Eogan, the large boxed arcs of type 4 carved on kerbstone 74 are reproduced on the second sillstone and on the backstone of the western tomb (Eogan 1996: 100). The same motif is reproduced on three stones placed on a same axis. On kerbstone 11, which marks the entrance of the eastern tomb, two great arc motifs, and not a single one, are carved. On the backstone of the tomb, located at the end of the final recess, appears a symmetrical figure composed on its higher part of two boxed arcs signs. Here also, the same motif is repeated at both ends of a tomb.

One could note with interest that the motif is not the same in tomb East and in tomb West. A link with the plan of the tombs can be proposed since the western tomb, marked with one single sign, is made of one single chamber whereas the eastern tomb, carved with a double motif, has two side recesses laid out symmetrically on each side of the axis, like are the two arcs signs carved at the entrance and back of the tomb.

Perhaps this system of representation would explain the decoration on kerbstone 30 in Knowth. This stone is carved with two large boxed arcs of type 4, identical to those on kerbstone 74, enclosing two opposite crescentiform arcs. It does not mark a tomb entrance in Knowth 1 but it is in the axis of the satellite tomb n°2 which is cruciform in plan as tomb East in the central monument. There could thus be a link between the plan of this tomb and the form of the motif carved on kerbstone K30 which is divided into two symmetrical parts,.

6.4.2. <u>An axis of partition</u>

The axis that structures the passage tombs gives the orientation of the passage and chamber and determines the symmetry of internal and external structures. On the one hand it orientates the monument and, on the other hand, it partitions it into two opposed parts. The internal and external iconography of the passsage tombs is sometimes organized so as to reflect this division of the monument in two sets. The axis is then used as a limit separating different groups of graphic elements.

6.4.2.1. Opposition of groups of signs on each side of the axis

Newgrange kerbstone K52 presents an ornament exceptionally well structured (figure 6.16). The carvings are vertically divided into two distinct parts composed by groups of different signs. On the left half of the stone, a group of three spirals dominates an combination of lozenges, chevrons

and triangles[2]. On the right half, three oval motifs enclosing cupmarks and triangles are carved with several arc signs. These two groups of distinct signs are separated by a vertical band, prolonged on the top face of the stone and which corresponds to the axis of the tomb.

The backstone in Loughcrew tomb L presents a similar organization. Also located on the axis of the tomb, the stone is carved with different motifs: meandering lines on the left half, cupmarks on the right half. These two graphic sets are not separated by a pecked line but by a natural formation, an important arris which « divides naturally the stone into two parts, the surface of the left half being 10cm back from the surface of the right half » (Shee Twohig 1981: 212). This natural line, which physically separates the two groups of signs, is accompanied on the left by an arc sign of type 2. Interestingly, a sign of the same type is in an identical configuration on Newgrange kerbstone K52.

The backstone in Loughcrew L is also comparable to one of the backstones in Le Petit Mont tomb III in Morbihan. Orthostate C6 in the Breton tomb is also divided into two parts by a natural arris. On the left part are horizontal meandering lines under an arc sign of type 2, in a configuration very close to the Irish stone. On the right part three vertical meandering lines with cups are carved.

The three stones described above cut perpendicularly the axis of a tomb. All three present the same iconographic layout: two sets of distinct signs separated by a natural or artificial vertical central line. The motifs opposed vary on each stone however some constancies can be noted. An arc sign of type 2 is systematically in the top right angle of the left half of the panel. Moreover, the right half of these flagstones are always marked by several cups.

6.4.2.2. Opposition between spiral and meandering sign

In the 13th tomb of Knowth necropolis, the system of opposition between the two halves of the monument is represented by the distribution of two different signs on each side of the axis of the tomb (figure 6.17). The only carvings recorded are on the southern part of the kerb where four stones are decorated (K15, K16, K17 and K24). An observation of the location of the carvings reveals that the signs are divided into two distinct groups on each side of the axis of the monument. On the left part of the tomb, the iconography consists of two meandering signs (kerbstones K17 and K24). On the right part of the kerb, kerbstone K15 presents spiral on its top face and two unspecified spiral-like concentric signs on its front face. Kerbstone K16, located at the entrance to the tomb, marks the junction between the two opposed parts of the kerb. Its decoration is divided into two distinct motifs: a meandering sign on the left and a spiral on the right. The partition of the iconography by the axis of the monument is very clearly represented here: the meandering signs are attached to the left half of the monument whereas the spirals are reserved to the right half.

The opposition between the right part and the left part of Knowth 13 is not limited to the iconography. A study of the geological nature of the kerbstones reveals a specific organization in their spatial distribution. Indeed, two different groups are distinguished on each side of the axis of the monument: the kerbstones located on the left are mainly sandstones and dolerites (11 out of 17 stones, i.e. 65%) whereas the kerbstones on the right part of the monument are in majority

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[2] Knowth kerbstone 11 also presents on the left half a grid motif and a spiral which correspond to an early phase of carving, covered later by large arcs of « plastic » style.

limestones, agglomerates and slates (13 out of 15 stones, i.e. 87%). The opposition of these two geological sets can also be seen in the two large boulders located on the opposite side of the chamber (K33 and K34) and between which passes the axis of the funerary structure.

In Newgrange, the two kerbstones next to K1 (K2 and K97) present a very simple carved ornament, contrasting with most carvings of the kerb (figure 6.18). Kerbstone K2, located left of K1, presents three chevrons whose angles are more or less curved. Kerbstone K97, located on the right, presents three spirals and a small single circle. Although the opposition is less clear here, since only a limited part of the kerb is concerned, we find the same model as in Knowth 13 (spirals on the right, meandering lines on the left).

In Knowth necropolis, the axis of tomb 4 is directed towards kerbstones 56 and 57 of the main tumulus. Kerbstone 57, is carved with two large meandering signs and with a little third one. Kerbstone 56, on the right of the latter, is carved with six large spirals and other little signs (circles, arcs and simple chevrons). These two adjoining stones are framed by non-carved stones and form one of G. Eogan's « pannels » (Eogan 1996 : 104). They are of different geological composition and show a clear opposition between two distinct signs laid out on each side of the axis of a tomb. As in both latter monuments, the meandering signs are on the left and the spirals are on the right.

6.4.2.3. Opposition in the orientation of arcs at the entrance of Knowth East and Knowth West

The entrance of tomb East and tomb West in Knowth tumulus is indicated in the kerb by a set of three stones. These sets are decorated by carvings and form two almost identical panels (figure 6.19). The middle kerbstone (K11 and K74) is marked by a vertical central line and one or two arc signs of type 4. The left kerbstone (K12 and K75) presents at its right end an arc sign of type 1 composed of seven or eight boxed elements opening upwards over which are carved two slightly curved parallel lines. On the left part of the stone a spiral is carved with a large arc of type 4 opening upwards. The kerbstone on the right of the set (K10 and K73) is marked by a horizontal set of spirals with a large arc sign of type 4 opening downwards. On this stone various arc signs also open downwards.

The entrance of the eastern and western tombs in Knowth is thus characterized by a structure composed of three kerbstones whose decoration, despite some differences of style and motifs, is organized in a similar way. The most common sign in this decoration is the arc sign, developed here in various types. A fundamental difference appears in the representation of these signs according to their location on the right or on the left of the entrance kerbstone. Indeed, the arcs located on the left part open upwards whereas the signs carved on the right kerbstone open downwards. There is thus an opposition in the orientation of the sign according to its position regarding the entrance or axis of the tomb. Here also, then, there is a principle of opposition organized around the axis of the monument.

6.5. Internal limits and structures of passage

The internal structure of the passage tombs consists of two principal elements: the passage and the chamber, often divided into several distinct parts: outer passage, inner passage (or antechamber), inner compartments, recesses. These various spaces are delimited mainly in plan by the orthostats which form their walls, but, in certain monuments, some additional structures elaborated on the ground or in the roof reinforce the partition of the tomb. These sillstones or lintels are of more or less large size and are placed between two opposite walls at the entrance of a passage, a chamber, a recess or in the middle of a passage. Their function is to well mark the limit between two spaces by forcing the visitor to step over an obstacle or to bend down. They are thus structures of limit but also structures of passing since they render possible the way across the limit.

The iconography of the passage tombs gives particular importance to the internal borders of the architecture and devotes specific signs to them. This chapter studies the spatial organization of four graphic forms associated exclusively with spatial limits: the parallel chevrons, the scalariform signs, the lines of circular signs and the rare sign n°2.

6.5.1. <u>Parallel chevrons</u>

6.5.1.1. Parallel lines of chevrons

The motif in parallel lines of chevrons is very common in Irish parietal art (see section 4.3.3.1). It consists of several parallel zigzags and, when carved alone on a stone, is frequently associated with internal limits of the monuments. In Fourknocks passage tomb, the motif appears on the front face of four lintels marking the entrance of different spaces (figure 6.20). Lintel E is laid out above the entrance of the final recess, lintel F above the western recess and lintel C marks the junction between the passage and the chamber. Stone A was discovered outside the tomb in the northern part of the tumulus (Hartnett 1957: 224-5). The shape of the stone, the type of the carvings and the location of its discovery argue towards a original function of lintel at the entrance of the passage (Shee Twohig 1981: 221-2; Eogan 1986: 183).

In the eastern tomb of Knowth tumulus, several motifs in parallel chevrons are associated with architectural limits (figure 6.21). As G. Eogan showed it (Eogan 1990 : 122-4), the two sillstones on the ground of the passage are surmounted by capstones carved with many chevrons (RS41, RS49 and RS50). They are the only stones of the passage carved exclusively with the motif.

The entrance of the final recess of the tomb is also marked with parallel chevrons. Orthostats 45 and 49, which form the eastern walls of the cell, are carved with vertical zigzags laid out along the outer edge of the recess. These signs are thus well associated with the limit of the final space. The same motif laid out in the same manner is carved on the edge of orthostat 55 in the northern recess. The carving does not correspond precisely to the entrance of the recess, materialized by two jambstones, but perhaps it marks the internal space of the recess occupied by the bassin stone.

In Fourknocks and Knowth, the motif is set perpendicularly to the axis of movement so as to « bar » the visitor's way. This last must symbolically walk across the several parallel lines of the carved figure.

In Loughcrew necropolis, several tombs present motifs in parallel chevrons located at the entrance of side recesses (figure 6.22). In tomb I, orthostat C17 is carved with six line of chevrons which mark the junction between the central chamber and the first side recess on the right. In tomb T, the under face of the northern recess capstone is marked with four incised chevrons, placed along the outer edge of the stone. Lastly, in the final recess of tomb U, orthostat C7 presents six lines of parallel chevrons extending from the outer edge of the stone to a vertical arris located in the middle of the stone. The opposite wall of the recess is formed by orthostat C5 whose more complex ornament also includes a motif of parallel chevrons. The sign is against the outer edge of the front face of the stone, made by a long transverse arris which constitutes the physical outer limit of the final space of the tomb.

In Newgrange and Barclodiad y Gawres, the last orthostat in the left wall of the passage is carved with a significant number of parallel chevrons (figure 6.23). As on orthostat C7 in Loughcrew U, the zigzags carved on Newgrange orthostat L22 extends from an edge of the stone to a vertical line of relief.

In Barclodiad y Gawres, the right wall of the passage ends with orthostat C16. This pillar is well known for its carvings often compared with those on Clear Island stele. The orthostat of the Welsh tomb is located at the junction between the passage and the chamber. The top part is carved with six lines of parallel chevrons above which is a spiral and under which is inserted a lozenge (figure 6.24).

This combination of three signs (see section 4.4.3.8) is also carved on top of orthostat 15 in Knowth tomb 17. This stone is exactly in the same spatial configuration : located on the right wall of the passage, it marks the junction of the passage and the cruciform chamber. These two orthostats prove the existence of structured parietal art around the Irish Sea. The composition is identical: the spiral is located in the top right angle of the stone and the lozenges occupy the center of the lower part of the motif; the lines of chevrons separate the two signs and extend from one edge to another of the carved face.

The parallel chevrons motif usually marks the limit between two spaces. On these stones, it marks moreover the limit between two signs. It is interesting to note that in the Barclodiad y Gawres tomb, the spirals are located only in the chamber (orthostats C3 and C13) and on the junction stones (orthostats C1 and C16) whereas the lozenges are located only in the passage (orthostat L8) and on the junction stones. Then, the spirals belong to the chamber, the lozenges to the passage, and both signs are combined where both spaces meet (figure 6.25). This simple model, valid for the Welsh tomb, does not work unfortunately in its Irish counterpart in Knowth.

Through several examples, we could see that the motif in parallel lines of chevrons is frequently associated with spatial limits and with passing structures. Other examples, less clear, can be added to this corpus (KhE.Or2; KhW.Or40; KhW.Or48; LcU.R2; LcU.C8; Ng.R18; NgK.A; HPW. B). Some kerbstones are also carved with the motif (Kh.K12; Kh.K13; Kh.K15; Kh.K28; Ng.K67; Ng.K85; Ng.K93; NgL.B). These stones do not mark an internal limit inside the tombs but the very limit of the cairn, though it is not surprising to find such carving there.

However, all motifs of this type are not reserved for this architectonic function. Certain stones carved with several parallel lines of chevrons have, a priori, no link with any architectural limit (KhE.Or48; Kh14.Or8; Kh17.Or13; LcT.C8; LcW.C4). Perhaps should we see there a symbolical border, not materialized by the architecture and thus invisible for the archaeologists? The question is also valid for the many corbels carved with the motif reason in the vault of the large tombs (KhE. CoA6; KhE.CoE6; KhE.CoF10; Ng.Co1/C2; Ng.Co2/C14; Ng.RScellE). In Knowth, the absence of link between parallel chevrons and architectural limit is also explained by the many reused stones whose carvings are not in there original context (KhE.RS32; KhW.Or16; KhW.Or17; KhW.Or18; KhW.Or74; KhW.Or81; KhW.RS3; KhW.RS5; KhW.RS10 - Eogan 1998; see chapter 8).

Thus, in spite of some exceptions, the motif in parallel lines of chevrons seems well attached to the limits separating various internal spaces inside passage tombs. In order to illustrate further this architectonic rule, we can quote the parietal art of tomb III in Le Petit Mont cairn, in Morbihan (figure 6.26). The orthostats which form the passage and the single chamber of the monument have various carvings. Among them, three orthostats are characterized by carvings limited exclusively to parallel lines of chevrons: orthostats L3 and R5 form the inner end of the passage, and so the transition towards the chamber. The small pillar C9 is located just on the right side at the entrance of the chamber. Its small size can not give it another function than a symbolic one and its carvings, made up of two vertical zigzags facing towards the passage, also indicate the limit between the two main spaces of the monument.

In the tomb of Gavrinis, the large sillstone marking the entrance of the chamber is carved on its side face with several parallel chevrons (figure 6.27). The shape of the stone and location of the sign echoe here the carved lintels in Fourknocks tomb. Two orthostats show several rows of parallel zigzags : stone R5, associated with the sillstone in the middle of the passage, and stone L11 which marks the entrance of the chamber.

6.5.1.2. Boxed single chevrons with central space

The boxed single chevrons is a common motif in Irish parietal art (see section 4.3.3). The figure sometimes has a carved central line and more rarely a central linear space, dividing symmetrically the two rows of branches of the motif. In Ireland, the sign is known on two stones: orthostat 50 in Knowth West and orthostat C4 in Newgrange. Orthostat 40 in the first tomb has a similar sign, but there the branches of the motif are more shifted than spaced (a similar motif is carved on the top edge of orthostat 8 in Knowth 14). In Brittany, the motif analysed here appears on orthostat L10 in Gavrinis.

In all quoted examples, the motif is directly associated to a passing structure. On orthostat 50 in Knowth West, the chevrons are carved on the lower left part of the stone, in the direct vicinity of the first sillstone of the monument (figure 6.28). On orthostat 40, the motif is carved along the left edge of the stone which marks exactly a point of widening of the corridor which there forms the chamber. In Gavrinis, the chevrons are carved on the lower part of the side face of orthostat L10 and are thus in the direct vicinity of the large sillstone separating the passage from the chamber. Lastly, in Newgrange, the motif is carved on the side face of orthostat C4 and marks the entrance of the western recess.

The motif in boxed single chevrons with central space is thus a rare figure but whose location in the sepulchral space is constant since it is systematically associated with a structure of transition separating two distinct areas.

6.5.2. The scalariform signs

As the parallel chevrons, the scalariform signs are associated with the structural limits of the passage tombs. The motif appears in many forms (see sections 3.2.4 and 4.4.3.15), on many stones and in many monuments. In order to give a better study of its spatial organization we will begin by a presentation of the corpus of the signs with their location in each monument. Then will be proposed a synthesis and an analyzis of the relationship between scalariform sign and architecture.

6.5.2.1. The corpus

In the northern tomb of Dowth tumulus, six orthostats have a scalariform sign combined with a circular sign (figure 6.29). This one is located in the axis of the sign (R5, C2, C7, C19 - see section 4.4.3.15) or on its side (L5, C18). All these signs are directly associated with a limit of the architecture.

In the passage, orthostats L5 and R5[1] are located on each side of the first sillstone. The two scalariform signs carved on these stones face each other and frame this passing structure.

Orthostat C19 marks the junction between the passage and the chamber, two spaces in which the stone presents a carved face. The scalariform sign is on the main face of the orthostat, directed towards the chamber, and is carved near the arris separating the two faces of the stone and marking the limit between the two main spaces of the tomb.

The side face of orthostat C2, directed towards the chamber, is carved with a scalariform sign combined with a circular sign in a motif close to the carving on R5. The sign is positioned on the right part of the face, along the arris which separates the side face (in the chamber) from the main face located in the northern recess. The scalariform motif is thus associated with the limit between the chamber and the recess, limit also indicated by a sillstone.

On the left edge of orthostat C7, a scalariform sign is combined with a circular sign. The sign is carved alongside the edge of this large chamber orthostat and is located above the sillstone separating the chamber from the northern recess. Here also, scalariform sign and architectural limit are associated.

Orthostate C18 also presents a combination of a circle and a scalariform sign. The first sign is on the side face of the stone, directed towards the chamber, while the second is on the main face of the stone, located in the southern recess. The motif, distributed on both faces of the orthostat, includes the natural arris of the stone in its composition in order to emphasize the limit separating the chamber from the recess. This carving is similar to the sign carved on orthostat L5 which consists of a row of horizontal parallel lines on the right, and of a simple circle on the left. On both orthostats, the two signs (circle and parallel lines) are separated by a vertical line: a carved line on L5, and a

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[1] Orthostat R5 is numbered R4 by mistake in the O'Kellys' report whereas the drawing of the plan and elevations of the tomb indicates correctly the fifth position of the stone in the right wall of the passage (O'Kelly & O'Kelly 1983: 151, 169).

natural line on C18. Here is a nice example of a natural line used as a graphic element in the place of a carved line (see section 5.2). In both cases, the vertical line, carved or natural, seems to represent the limit between two spaces.

In the southern tomb of Dowth, the two stones carved with a scalariform sign mark the junction between the central chamber and the single recess (figure 6.30). The lintel above the entrance of the cell presents several signs in vertical parallel lines that G. Coffey interprets as representations of ship-figures after the famous Swedish rock carvings (Coffey 1898: 586 - quoted by O'Kelly & O'Kelly 1983: 178). On the face of orthostat C13 directed inside the cell is carved a combination of two circles framed over and above by two sets of incised vertical parallel lines (O'Kelly & O'Kelly 1983: 178). The motif, whose composition is very close to the sign carved on orthostat C7 in the northern tomb, is located alongside the arris of the stone, near orthostat C12 which forms the south-western wall of the recess. The sign, by its location in the tomb and its position on the stone, is directly associated with the limit separating the central chamber and the side recess of the tomb.

In the tombs of Knowth main tumulus, the scalariform sign appears only on four orthostats (figure 6.31). In tomb East, the first orthostat forming the left wall of the passage is carved with several tens of incised parallel lines. Here, the sign marks the transition between the outside world and the passage, i.e. the entrance of the megalithic structure.

In the western tomb, orthostat 51 is distinguished from the other carved stones by a long vertical line carved all across the stone from top to base. On the right part of the orthostat, several short horizontal parallel lines are carved alongside the long line. The whole forms a scalariform sign of type 4 (see section 3.2.4). The orthostat is not associated with a sillstone or a low lintel, but its location corresponds to an important threshold of the architecture: at this point indeed the axis of the passage is deviated to form an angle.

Orthostat 38 in tomb West present on the top left part of its face an original scalariform sign made of four parallel lines intersected perpendicularly with two vertical lines converging in their top and diverging in their base. There also no sillstone marks a limit, however the location of the sign corresponds to the widening point of the passage which forms here the chamber of the tomb.

Is there a link between the shape of the sign and the form of the architecture? Indeed, the carving is characterized by two divergent lines and the place where it is located is characterized by the opening of the two lines of orthostats. The opening of the carved lines could correspond to the opening of the walls of the passage to form the chamber.

Lastly, the upper part of orthostat 39 is marked with four large horizontal bands forming a large scalariform sign of simple type that is also carved on two orthostats in Newgrange (see below). The sign corresponds here to the entrance of the chamber.

In the satellite tombs of Knowth, the scalariform sign is very rare. It appears in tomb 4, on the top left angle of loose stone A which is interpreted as the missing sillstone between the chamber and the final recess of the tomb (Eogan 1984). In tomb 17, orthostat 15 is carved with several incised lines more or less parallel. The intermediary position of the stone between the passage and the chamber has already been examined above.

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In Newgrange, three orthostats in the right wall of the passage are carved with a scalariform sign. The location of these signs corresponds to two architectural limits also signalled in plan as well as in elevation by the system of the lintels forming the roof of the tomb (figure 6.32). Orthostats R12 and R21 present a comparable sign, formed by broad horizontal bands carved deeply in the stone. The first orthostat marks the entrance in the second part of the passage whereas the second orthostat marks the limit between the passage and the chamber. These two stones, with an identical iconography and a same architectonic function, were described as junction-stones by E. Shee Twohig (Shee Twohig 2000: 94-5).

A more discrete sign is incised on the lower left part of orthostat R20. Composed of more than 20 parallel lines, the motif seems associated with orthostat R21 and marks thus the end of the passage.

In Loughcrew necropolis, four tombs are marked with scalariform signs. Orthostat L1 in tomb F makes the first element of the left wall of the passage. This architectural limit is symbolically indicated by a motif made up of six parallel lines (figure 6.33).

In tomb I, a simple scalariform sign is located on top of the narrow pillar R2 and marks the junction between the passage and the chamber. Another scalariform sign, of type 3b, is carved on the side face of orthostat C13 and marks the limit between the chamber and the second right recess.

A sign carved on the side face of orthostat C17 in Loughcrew L is in the same configuration (Shee Twohig 1981: figs 222, 227).

In tomb H, orthostat R2 has a sign of type 3a carved alongside its left edge (Shee Twohig 1981: fig. 216). No architectural structure indicates a limit at this place (the capstones disappeared) however the position of the sign on the stone and its location in the middle of the passage lets think that the scalariform motif is associated with the usual limit which divides the passage in two parts.

In tomb S, a sign of type 4 is carved on orthostat L4, in the top left part of the face turned towards the chamber. The sign is associated with the edge of the slab which marks the limit between the passage and the chamber (figure 6.35).

In the tomb T of the necropolis, six signs are distributed on three stones (figure 6.34). The side face of orthostat C15 is turned towards the passage and marks the junction between the passage and the chamber. A scalariform sign of type 3a is carved on the lower part of the face and is directly associated with the sillstone which separates the two main spaces of the tomb. The sign, which does not appear in E. Shee Twohig's drawings (Shee Twohig 1981: fig. 237) was recorded by V.G. Du Noyer (Frazer 1893: figs 47 and 49) and is still visible today. The main face of orthostat C15 is in the chamber of the tomb. At the top right angle of this face, two simple scalariform signs are carved against the edge of the stone and mark the entrance of the chamber.

On the entrance lintel of the southern recess, two lines of vertical parallel lines are carved.

The limit between the chamber and the northern recess is indicated by a sillstone and two scalariform signs carved on the right part of orthostat C14. The upper sign, of type 3b, is characterized by a curved central line, in the axis of which is the lower sign. Thus, both associated signs form a vertical line above the sillstone and extend this spatial limit marker.

Lastly, the entrance of the final recess is marked by a sign made up of several short and thick scores, carved on the side face of orthostat C9.

We can add to this corpus the motifs in vertical parallel lines carved on orthostat R5. The slab is the last orthostat of the right wall of the passage, then the signs are associated with the limit between the passage and the chamber.

In Loughcrew tomb U, two stones are marked with scalariform signs (figure 6.35). Orthostat C2 presents on its left part a series of three signs of type 1b laid out in a vertical axis so as to point out the limit between the chamber and the second left recess. The entrance of the final recess is marked with a simple sign of type 1a carved on the tilted top face of orthostat C5.

Another scalariform sign, very faded, is perhaps carved on the right part of orthostat L2 (Frazer 1893: fig. 58; Shee Twohig 1981: fig. 239). The sign would thus mark the limit between the passage and the chamber.

In Knockmany, two slabs set perpendicularly mark the limit between the passage and the oval chamber of the monument. On one of these slab (orthostat C12), three rows of parallel lines form a vertical motif (Shee Twohig 1981: fig. 210).

In the passage tomb of Barclodiad y Gawres, on the island of Anglesey, orthostat C14 is marked with broad parallel bands, deeply picked in a very similar technique to orthostates R12 and R21 in Newgrange (Lynch 1967: 7-8; Shee Twohig 1981: 230). Without any accurate drawing it is impossible to decide on the form and position of the sign, however, if it is a true scalariform sign identical to those in Irish tombs, its location would be coherent and thus would correspond to the limit between the chamber and western recess.

The scalariform sign is not very common outside the Irish Sea region. In Brittany, it appears in three passage tombs where it also marks the structural limits separating the different spaces of the monuments. In the passage of the Table des Marchands passage tomb (Locmariaquer, Morbihan), a scalariform, or ramiform, sign is carved in the top right angle of orthostat 3 (figure 6.36). The Location of the sign corresponds to an important threshold indicated in the architecture by a change of direction in the axis of the passage and by two orthogneiss pillars which divide the passage into two parts (Robin, forthcoming).

In the angled tomb of Les Pierres Plates (Locmariaquer, Morbihan), three scalariform signs correspond to three architectural limits (figure 6.37). On the left part of orthostat L5, a motif made up of six horizontal parallel lines marks the entrance of the side cell. On orthostat R12, a sign of type 3b corresponds to the point of opening of the passage and marks thus the entrance in the chamber. Lastly, on orthostat R15, another sign of the same graphic type marks the limit between the central chamber and the final chamber, seperated by orthostat J1.

In the angled tomb of Poulguen (Penmarc'h, Finistère), an identical sign is carved on the end of orthostat L5 and thus marks the junction between the passage and the chamber (Shee Twohig 1981).

In the Neolithic hypogea of the Marne valley (Paris Bassin), several signs in parallel short

lines are known (Bailloud 1964: 182). Most of them mark the walls located between the antechamber and the chamber (hypogea of Razet 19, Razet 22, Les Houyottes 5, Les Ronces 21, Saran 7).

In Iberia, several scalariform or ramiforms signs seem also to be associated with various internal limits of passage tombs (Bueno Ramirez & Balbin Behrmann 1996).

In the passage tombs around the Irish Sea, the scalariform sign is a sign undoubtedly attached to architectural limits and passing structures. Various Western-European examples, collected after an uncomprehensive investigation, confirm this model. After a presentation of the corpus, a synthesis and an analysis of the relationship between this complex sign and the spatial limits of the tombs is now proposed.

6.5.2.2. Synthesis

The forms of the scalariform sign are multiple (seven types) and the architectural limits with which it is associated are varied. A table allows a synthetic vision of the relations between the forms of the sign and its locations in architecture (figure 6.38). The deeper limits are mostly emphasized by the scalariform sign: outsid/passage limit = 2 signs; outer passage/inner passage limit = 5 signs; passage/chamber limit = 11 signs; chamber/recess limit = 15 signs. Besides, type 1a is the most current form and its spatial distribution is the widest. The other graphic types are distributed without particular tendencies between the middle of the passage and the limits separating the chamber from the side recesses.

Certain spatial logics appear inside the monuments. Indeed, the scalariform signs are often located on the same side of the tomb. In Loughcrew I, the signs are distributed in the right half of the tomb (orthostats R2 and C13). In tomb U, they are located on the left side (orthostats L2, C2, C5). In tomb T, except the lintel of the southern recess, all the signs are carved on the right wall of the tomb (orthostats C9, C14 and C15). In Newgrange, the carved lines are all on the right side of the passage (orthostats R12, R20, R21).

Are all the scalariform signs of Irish parietal art associated with architectural limits? Is there exceptions or counterexamples? Outside the tombs, the sign appears on several kerbstones. We know that these stones embody a limit, the border of the tumulus. Moreover, the position of the sign on these stones is interesting since it is always associated with the upper arris (or sometimes top face) of the slab (see sections 5.1.2.3 and 6.3.3). Its function is here also to emphasize the physical vertical limit represented by the kerb. Inside the tombs, almost all the scalariform signs are directly related to an architectural limit or a passing structure. The examples confirming this rule of spatial distribution are presented above. Other scalariform signs are carved in tombs recesses but we keep their study for the next chapter.

There are however some exceptions, or more exactly there are signs for which the architectural or symbolic limit is not obvious. At Knockmany, the side face of orthostat C6 presents several horizontal parallel lines (Shee Twohig 1981: fig. 210). This stone does not mark a threshold in the architecture, however its position, perpendicular to the chamber orthostats, echoes the layout of the

two slabs marking the limit between the passage and the chamber (C2 and C12). Is this a symbolic threshold between the chamber and an immaterial space?

In the eastern tomb of Knowth, two stones in the chamber corbelling (KhE.Co41-2; KhE. CoA10) have incised parallel lines. We find here the same question as for the parallel chevrons motif: which limit was represented by the vault for the Neolithic people?

In Loughcrew tomb T, a scalariform sign combined with a circular sign is carved on orthostate L2, and the orthostat is not arranged as an architectural limit. Perhaps the sign, placed in the right part of the stone, is associated with the two pairs of jambstones which form a threshold in the middle of the passage.

In Loughcrew, several signs appear on the roof or on the backstone of side recesses (LcT. Co1/C2; LcT.RScell2; LcT.C8; LcU.C6). Such locations seem surprising since these surfaces do not form any limit or passing structure in the architecture. However, we will see in chapter 7 that a symbolic reading of these walls can explain the presence of these threshold-signs there.

Lastly, a scalariform sign composed of four parallel lines is carved on the upper face of the third capstone of Newgrange passage. We touch here the problems of hidden art and the question of the re-used carved stones which will be examined in the last chapter of this dissertation (chapter 8).

6.5.3. The lines of circular signs

In Irish parietal art, several circular figures are sometimes combined to form a rectilinear or slightly curved alignment (see sections 4.3.1.2 and 4.3.1.3). Inside the tombs, the motifs of this type are associated with the internal limits of the funerary space (figure 6.39).

In the northern tomb of Dowth, orthostat C19 presents two carved faces, one turned towards the passage and one turned towards the chamber. The arris separating the two faces marks the limit between the two spaces of the tomb and is carved with a vertical row of five oval figures. On the opposite side of the chamber, orthostat C7 has on its lower right edge a curved alignment of six circular signs of which four are made of radial elements. The motif emphasizes the limit between the chamber and the final recess.

In Loughcrew tomb U, an combination of 11 single circles carved on orthostat C2 marks the entrance of the second left recess.

In Newgrange, two parallel lines of circular signs are laid out on the left edge of orthostat R20 and signal the transition between the passage and the chamber.

In the eastern tomb of Knowth, the entrance of the northern recess is signalled by two jambstones : behind the eastern jambstone, and so as to complete it symbolically, a line of three circular signs is carved on orthostat 56. In the western tomb, orthostat 39 presents on its right edge a vertical alignment of four discs, carved where the two rows of orthostats open to form the chamber.

The last orthostat of the left wall of Loughcrew F passage is carved with a chain of 16 cupmarks all extending horizontally across this stone located at the junction between the passage and the chamber.

Finally, in Barclodiad y Gawres passage tomb, the last slab on the left wall of the passage is divided vertically into two parts by a row of three deep natural cups (Powell & Daniel 1956 : plate 19).

We will see in the next chapter how the lines of circular signs are arranged in the side recesses.

6.5.4. The rare sign n°2

The rare sign n°2 comes as a dissymmetrical trident, without handle, directed downwards (see section 3.4). This original figure appears only in the main monument of Knowth necropolis where it is associated with several architectural limits (figure 6.40). In the eastern tomb, it is carved on the left jambstone marking the entrance in the northern recess. In the western tomb, the sign covers a great surface of orthostat 41 and is directly associated with two successive sillstones. A vertical line of relief cuts the third leg of the motifs and meets the ground exactly where the second sillstone is placed (O'Sullivan 1996: fig. 8). The sign thus lies between the left edge of the orthostat and a vertical line of relief, two natural limits corresponding to the location of the two sillstone.

On the kerb of the tumulus, kerbstone 40 is carved with the same sign. The slab is in the very south of the kerb and marks the junction between the two halves of the tumulus in which has been built a different tomb. The limit between the eastern and western hemispheres of the cairn is perhaps symbolized by the vertical natural line which extends across kerbstone 40. We find the same graphic organization as that on orthostat 41 in the western tomb: a rare sign n°2 associated on its right side with a vertical natural line.

6.6. The funerary recesses

The funerary recesses or cells, accessible from the chamber of the tombs, form small spaces in plan and in elevation. These distinct spaces have their architectural specificity but also their own particular iconography. The parietal art of the side and final recesses is indeed distinguished from the rest of the tomb by exclusive motifs: reversed arcs (open upwards), opposed triangles and other complex figurations. Moreover, the position and the orientation of known motifs, such as scalariform signs and lines of circular signs, are particular there. The purpose of this chapter is to show the specificities of the parietal art of the recesses in its iconographic choices and in the spatial organization of the signs which are carved there.

6.6.1. <u>Inverted arcs</u>

The arcs signs, irrespective of type, mainly open downwards. Only 20% of signs are reversed, i.e. open upwards (see section 3.1.4). There are several types of arcs signs but only one will be analysed here : the sign in boxed arcs (type 2b). Inside passage tombs, this motif appears on the walls of various funerary spaces. However, the sign in a reversed position is carved only inside recesses, more precisely on the backstones or close to the backstones of these cells.

In Loughcrew tomb T, three orthostats are marked with inverted arcs (figure 6.41). Orthostat C14 presents on its left side a sign made up of six boxed arcs and several radiating curved lines. Orthostat C9 is carved with two similar signs on its higher part and with a simpler sign, located on the lower right part of the slab, made of three parallel arcs. Lastly, orthostat C8 presents on its lower right part two signs in boxed arcs, one made of four parallel arcs, the other made of three arcs and four vertical parallel lines placed inside the motif. These orthostats form the walls of the northern and final recess in the tomb. It is interesting to note that the signs in boxed arcs are concentrated here in the inner right angle of the cells.

In Loughcrew tomb I, orthostat C1 forms the left wall of the first left recess and shows a sign made up of four reversed arcs (figure 6.42). Orthostat C13 forms the left wall of the second right recess and is carved with two similar signs made up of four and seven arcs. Lastly, in Loughcrew U, orthostat C10 in the second right recess has a sign made up of two parallel arcs opening upwards.

In Knowth necropolis, the motif appears inside two tombs only. In the eastern monument of the central tumulus, orthostat 54 presents several signs in boxed arcs, resting in an inverted position on two incised horizontal lines. The support on which these signs are carved forms the backstone of the northern recess. In satellite tomb 14, six parallel arcs, opening upwards, are carved on the inner face of orthostat 8. The sign does not appear here in a side recess but in a small single chamber of rectangular form.

Inside the tombs, the boxed arcs of type 2b in a reversed position are systematically carved in side cells or final cells of the tombs. In these small spaces, the sign appears on the backstones or close to them. Thus the sign obeys a precise spatial organization.

Only one exception to this rule can be pointed out. Indeed, three signs of this type are carved

on orthostats L3 and R3 in Loughcrew tomb L (figure 6.44). These two slabs do not belong to a recess, however their location is not meaningless: forming a symmetrical pair in the center of the passage, they can be regarded as the threshold which usually delimits the two halves of the access structure of the tomb. Moreover, the signs analysed here are carved above a floor slab. Such an element is quite unusual in a passage and is more often found in the side recesses of the tombs, in the form of slab or « basin ». Loughcrew L is the only passage tomb in Ireland to present this characteristic, except tomb K in Carrowkeel whose every space (passage, chamber, recesses) is paved with a slab (Macalister *et al.* 1912) and Loughcrew tomb T whose chamber and antechamber are also paved. The stone covering the ground of the passage in Loughcrew L does not occupy a recess but seems to have had the same function as the final spaces: indeed, E.A. Conwell reports to have discovered cremated bones on the western part of the slab during the first excavations on the monument (Conwell 1866: 368). As in the other monuments described above, there is here a link between the iconography (reversed parallel arcs) and the funerary function of the space (sepulchral slab).

6.6.2. Opposed triangles

The combinations of triangles opposed by their point has been described in section 4.3.4.3. The motif is not very common since it appears only on five stones distributed in two tombs. A great coherence characterizes the spatial organization of the opposed triangles, those ones being exclusively carved in the lateral and final recesses of the monuments (figure 6.45).

In the tomb of Newgrange, the motif is distributed in the three cells. In the final recess, it appears at the top right angle of the backstone (orthostat C8) and on the corbel located above orthostat C10 (Co1/C10). In the eastern recess, two pairs of opposed triangles are carved on the corbel resting on orthostats C12 and C13 (Co1/C12-13). Lastly, in the western recess, two rows of ten triangles mark the corbel located above orthostat C2 (Co1/C2).

In Loughcrew tomb L, three pairs of opposed triangles are carved at the top right angle of the backstone of the last recess on the right side of the monument (orthostat C16).

Thus, all carvings in opposed triangles are in a recess. Moreover, the motif is attached to the high parts of the cells since it is carved on the first course of corbelling (Ng.Co1/C2; Ng.Co1/C10; Ng.Co1/C12-13) or on top of orthostats (Ng.C8; LcL.C16). Lastly, it is interesting to point out the identical position (top right angle) of the sign on the backstones of Newgrange and Loughcrew.

In the passage tomb of Gavrinis, the sillstone marking the limit between the passage and the chamber presents carvings on its both side faces. The side face turned towards the passage is carved with parallel chevrons (see section 6.5.1.1) whereas the side face turned towards the chamber presents two rows of single chevrons opposed by their point. There is then a distinction between the motif directed towards the passage and the motif directed towards the chamber, this last being very close (by its form and its location) to the Irish motif in opposed triangles.

6.6.3. Scalariform signs and lines of circular signs

The scalariform signs and the lines of circular signs hold the same symbolic function in

the passage tombs (enhancement of the architectural limits) and are often associated on the same stones where they are laid out in parallel (Dh.K51; DhN.C19; KhW.Or39; LcU.C2; LcT.C15; Ng.R20; Ng.K13b; NgL.B). The link between both motifs is also noticeable in the funerary recesses where, isolated or associated, they present the same spatial arrangement. Indeed, in the cells of the tombs, scalariform signs and circular lines of signs are systematically carved:

- on side walls (and not on backstones)
- on the base of orthostats
- in a horizontal axis

This precise and rigorous rule is illustrated by seven scalariform signs (figure 6.46) and four alignments of circular signs (figure 6.47).

In Loughcrew tomb L, a horizontal line of ten short lines is carved on the base of orthostat C5 which forms the western wall of the second left recess. In tomb T, a scalariform sign of type 3a is laid out horizontally on the bottom of orthostat C2 which forms the eastern wall of the left recess.

In the northern tomb of Dowth, a sign of type 4 is carved at the foot of orthostat C19. This stone is located in the chamber of the tomb and not in one of the side cells, however, a fragmented altar stone was discovered at its base. If the location of the stone is original (the « basin stone » could have been evacuated from the south recess during previous plunderings - O'Kelly & O'Kelly 1983: 152-3), the sign would be in a configuration equivalent to the signs carved in funerary recesses. In the southern tomb of Dowth, two horizontal rows of incised parallel lines are carved at the base of orthostat C12 which constitutes the south-western wall of the single recess of the tomb.

Lastly, the right wall of the small single chamber of Knowth 14 is formed by orthostat 8 whose rich carved ornament has two scalariform signs on its lower part.

Four passage tombs present a carving in line of circular signs on the wall of a recess (figure 6.47). In Loughcrew tomb U, a horizontal alignment of four simple circles is carved at the base of orthostat C10, in the second recess on the right side of the monument. In tomb L, three simple circles appear above the scalariform sign carved on orthostat C5. In tomb I, two parallel alignments of simple circles are carved on the left wall (orthostat C13) of the second recess on the right side of the tomb. Lastly, in the southern tomb of Dowth, a curved alignment of five radiate circular signs is carved with the two scalariform motifs at the base of orthostat C12.

The scalariform signs and the lines of circular signs are associated with the internal limits of the tomb. In what manner do these motifs indicate a limit inside the funerary recesses? As just seen above, these figures present a very specific layout in the cells: low and horizontal position, location on the side wall of the recesses. If a limit is enhanced, it is thus a horizontal limit located at the foot of the orthostats. The signs seem to be here associated with the limit that form the ground or the altar stone. How do the surface of the ground or the slab receiving the burials constitute a threshold, a passing structure? We broach here the purely symbolic dimension of the passage tombs, an aspect which we will be dealt in the following chapter.

6.6.4. The complex figurations

Certain complex figurations are carved exclusively in the funerary recesses of passage tombs. The term refers to associations of distinct signs, combined more or less directly in space. Three case studies are proposed.

6.6.4.1. Circular sign with arc appendages

The motif made up of a circular sign with arcs appendages has been described previously in chapter 4.4.1.3. Known in three passage tombs, the figure is systematically located on a backstone (figure 6.48).

In the single chamber tomb of Sess Kilgreen, the famous motif extends all over the surface of orthostat C6. In Loughcrew tomb U, two specimens of the motif are carved on the backstone of the middle recess on each side of the monument (orthostats C3 and C9). In tomb L, two carvings of circular sign with arcs appendages are in an identical configuration: one is on the backstone of the second recess on the left side (orthostat C4), the other is carved on the backstone of the second recess on the right side (orthostat C16).

The backstone of the final recess of Knowth East presents an original composition, made up of boxed arcs laid out around a circular natural form that occupies the center of the slab. The association of the carvings with the relief of the stone forms a motif close to the previous ones. The location of the motif seems thus coherent since the carving is located on a backstone.

Perhaps should be added to this list the sign carved on one of the steles of Glassonby megalithic enclosure. Made of a circular sign and two arc appendages, the carving is not on a backstone since the monument is not a passage tomb. However, the carved face of the stele is turned towards the interior of the enclosure, like carvings inside a megalithic chamber. Thus the configuration of the monument is comparable, for example, with that of Sess Kilgreen chamber and perhaps the carved stone of Glassonby held the same symbolic function than orthostat C6 in the Irish tomb.

6.6.4.2. Meandering sign with an 8-shaped end associated with three spirals

The meandering sign sometimes has a distinct end whose form varies from a cupmark to a rectangle (see section 3.3.2). Two signs are distinguished in the Irish corpus by an 8-shaped end. The first motif is on the side face of orthostat C14, in the northern recess of Loughcrew H. The second is carved on the backstone of the western recess in Newgrange tomb. In both monuments, the sign is associated with a set of three large spirals laid out on the right of the meandering motif, i.e. on the right part of the backstone in Newgrange and on the sillstone at the entrance of the recess in Loughcrew H (figure 6.49).

There is then the same composition (three spirals + serpentiform with 8-shaped end), laid out in the same space (side recess) inside two cruciform tombs. These two monuments, by their plan and their parietal art, testify to a precise spatial organization of signs and architectural spaces in the Irish Neolithic.

The figuration associates a meandering sign on the right and spirals on the left. This binary composition echoes the carvings observed on the kerbs of Knowth 13 and Newgrange and which evokes a partition of the cairn in two opposite parts on both sides of the axis of the tomb (section 6.4.2.2). We find here this model, not laid out in the axis of the monument but on the frontal walls of side recess. The tombs of Newgrange and Loughcrew H are both cruciform in plan. Can one regard the side recesses of these tombes as parts of a second axis, cutting perpendicularly the main axis of the monument? There are no elements enough to support the hypothesis any further, but the idea seems interesting for the comprehension of the spatial partition of the passage tombs.

6.6.4.3. Circular sign and line of relief linked by a curved line

The tombs of Loughcrew V and Knowth 2 are partially destroyed and a great part of the orthostats that composed them are missing. Besides their conservation state, both monuments have a carved motif in common. This is a circular sign linked with an element of relief by a curved line (figure 6.50). In Loughcrew, orthostat C8 presents a sign made of four concentric circles laid out close to an important arris which runs diametrically across the stone in its higher part and which is completed by a cavity deep of several centimetres. The carved sign and this remarkable relief are linked by a curved pecked line. In Knowth tomb 2, the carvings on orthostat 25 are simply composed of a circle and a line linking the sign with a natural arris going horizontally across the higher part of the stone.

This particular motif, which combines carvings and natural relief, is in both monuments laid out inside a side recess located on the right part of the tomb. Two examples only cannot build an absolute rule, however these two carved stones testify to the same organization of the iconography in the slab space (position of the signs, association of the relief) and in the architectural space (location of the motif in the right side recess).

6.7. Conclusion : parietal art and architecture as two superimposed spatial systems

The research on the relations between iconography and architecture produces a great number of results. Thus, certain signs and signs combinations are associated exclusively with certain parts of the architecture or certain virtual spatial principles organizing the architecture. We can summarize these results to some principal relations (figure 6.51):

- Kerb motifs: the horizontal combinations of spiral and parallel zigzags as well as the pairs of opposed crescentiform arcs occur exclusively on the kerb of tumulus.
- Thresholds motifs: six types of signs or signs combinations are systematically associated with the internal limits of passage tombs. These types are as follows: parallel zigzag chevrons; parallel simple chevrons with central space; combinations of spiral, parallel chevrons and lozenge; scalariform signs; alignments of circular signs; rare signs n°2.
- Axial motifs: various motifs reproduce the principle of the central axis through their arrangement or their distribution into the architecture. Three types of motifs are concerned: lines of simple arcs, large simple lines, certain boxed arcs.
- Terminal motifs: certain types of signs or combinations of signs occur exclusively inside axial and side cells of the passage tombs. These figures are as follows: inverted parallel arcs; triangles opposed by their point; concentric circles with arc appendages; combination of three spirals with a meandering sign presenting an 8-shaped end; circular sign connected to a line of relief by a carved curved line.
- Axial opposition: this principle of layout of the carvings is not related to specific types of signs. Each tomb, in which the phenomenon was observed, presents various groups of signs opposed on both sides of the axis.

Most of the relations between iconography and architecture appear on the internal limits of the monument. Indeed, the various thresholds of the funerary architecture are particularly emphasized since, on the one hand, certain tombs present carvings only around spaces of transition and, on the other hand, a large variety of signs and combinations of signs are reserved to these spaces.

The scalariform signs and the alignments of circular signs are particularly interesting. The first form a category of signs completely associated with limits: those of the architecture, but also the higher limit of kerbstones (figure 5.3) and the limit of the ground inside the cells of the tombs (figure 6.46). We wondered if there was a link between the various forms of the motif and its various location, but the undertaken study did not detect significant relations between these two parameters (figure 6.52).

The alignments of circular signs are in some kinds the alter ego of the scalariform signs since they occupy the same locations and the same functions of « threshold sign ». Even their layout is identical: both are set in parallel to the architectural limits with which they are associated. In a more anecdotic way, the symbolic proximity of both graphic forms is also illustrated by the carvings on the back face of kerbstone 13 in Newgrange: on this hidden face, both motifs are associated and laid out on the same vertical axis.

The lines of circles also present an interesting characteristic: when the line is slightly curved, the concave part of the motif is systematically directed towards the architectural limit (figures 6.39

and 6.47).

The main conclusion of this chapter is that a significant part of Irish parietal art is organized according to the architecture of the passage tombs. There is thus well a close relation between the signs and their environment. More precisely, iconography and architecture are arranged in space according to the same layout and thus form two superimposed symbolic system, forming a whole.

The analysis of the associations between art and architecture reveals then various ruling principles in the layout of the signs and the built structures:

- an axis of orientation
- an axis of opposition
- a succession of thresholds set along the axis

This model of spatial organization, based on the recurrences observed in our study, is not a closed and absolute model. It allows to see a part of the fundamental plan on which is based the construction of the monuments and other ruling principles remain certainly to be discovered in the layout of the signs and architectural elements.

The analysis of the organization of the carved figures brings us to focus in the spatial organization of all the architectural structures. Can an analysis of the layout of the building materials or the arrangement of the funerary deposits provide additional information on the symbolic conception of space in these Neolithic tombs? We will now attempt this question.

Chapter 7

Spatial organisation of the funerary structures and deposits : real spaces and symbolic spaces[1]

The analysis of the organization of the carved signs in passage tombs reveals a close connection between iconography and architecture. The association in space of these two sets points out certain elements and principles which prove to be essential: the outer delimitation of the tumulus (kerb), the axis of the tomb (as a line of orientation and division), the entrances and thresholds of the tomb and finally the recesses (as distinct spaces).

The aim of this seventh chapter is to put into perspective these results by analyzing the spatial organization of the architectural elements (tumulus and tomb) and funerary deposits (human remains and grave furniture) ; to determine if the principles ruling the space organization of the carved signs are also valid in the layout of these other essential components of the monuments. Is it possible to identify a coherence between the constitution of the tumulus, the architecture of the tomb, the spatial organization of the parietal art and the funerary practices?

The preceding chapters were centered on the parietal art, on its various forms and its organization into the space of the tomb and kerb. This chapter focuses on its context. Here will be examined less the carvings than the architecture to which we attach the same degree of symbolism. Indeed, the funerary structures that we examine cannot be reduced to simple places of conservation of the deceased: the monumentality of the tombs and the complexity of the visible and invisible structures indicate more a function of representation than one of use. Thus these monuments constitute a set of real spaces, that everyone can see and walk in, and a set of symbolic spaces that archaeologists have to identify.

The first point of this chapter deals with the architecture of the tumulus. It proposes an inventory and an analysis of the various components of this « cover » and their layout. The second point will examine the relations between the architecture of the tomb and the architecture of the tumulus. Finally the third point will study how the principle of axial opposition, identified in the parietal art, appears in the layout of building materials and funerary deposits.

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[1] The second part of this title is inspired by a paper by F. Roncalli (2001) whose research on Etruscan funerary art and architecture (1997, 2003) was of a very precious help in our study.

7.1. The tumulary system

The attention of the archaeologists most often went to the internal structure of the monuments, sometimes at the expense of the outer structure that forms the tumulus. An exception has to be noted in British archaeology which was early interested in the stratigraphic layers of the tumular covers (Hemp 1930; Powell 1941; Walshe 1941; Davies 1946; Hartnett 1957, 1971) whereas in France, the archaeology of Neolithic tombs put aside this fundamental aspect of the architectures for a long time. Indeed, the tumulus should not be understood as a simple cover used to protect the tomb. It is a complex, thought out and built structure, a symbolic architecture whose function goes beyond monumentality and whose various components form a real system.

The archaeological analysis of the tumulary structures of passage tombs takes us away, the time of a chapter, from the question of the parietal art. This stage is nevertheless necessary to understand the symbolic constructions that are passage tombs. Indeed, the study of the invisible structures allows a better perception of the place and the function of the visible elements that are the megalithic tomb and the art.

The complex nature of the Irish Neolithic tumuli was pointed out by G. Eogan in a brief paper, published in 1984, that resumes the principal remarks on this, then, new question (Eogan 1984b). The archaeologist describes the various tumulary layers and internal wallings discovered in several Irish monuments and which, in the absence of a practical function, are explained only by symbolical reasons.

This present chapter resumes G. Eogan's remarks with added examples and extends the reflexion to the symbolic nature of the internal structures of the tumuli. The study is divided into two parts: the first one will deal with the diversity of the tumulary materials, used to form distinct spaces within the structure; the second one will analyse the linear constructions delimiting these spaces.

7.1.1. The materialization of concentric spaces: superpositions of tumulary covers in distinct materials

The cairns and tumuli in which are built passage tombs are rarely composed of one single material. Very often, the stratigraphy of these structures reveals a complex composition made in several stages and with various materials. It is not aimed here to make an inventory of every tumulary layers around the Irish Sea but to describe how, in certain monuments, these components are used so as to lay over differentiated spaces in surface and volume. It is more about horizontal stratigraphy than vertical stratigraphy here. These spaces materialized on the ground surface are generally shaped like concentric rings organized around the funerary chamber and extending from the latter to the outer edge of the tumulus.

Tomb 2 in Knowth necropolis, in great part destroyed, is made of two tumulary envelopes (figure 7.1). The first one consists of compact earth laid around the tomb, the second one is made of

sods of a distinct texture (Eogan 1984a: 21-3).

The chamber of tomb 15 (figure 7.2) is also surrounded by two distinct sedimentary envelopes: the first circle around the tomb is made up of earth whereas the second, forming the second circle, consists of boulder clay (Eogan 1984a: 102-3).

Tombs 12 and 16 of the necropolis have a similar tumulary structure: the chamber of these tombs is covered by a stone and earth mixture which forms a central tumulus, then enclosed in a much larger earth mound (Eogan 1984a: 68, 123-5).

In Newgrange, tomb L distinguishes itself from the other Irish architectures by a mound of pure sand built around the cruciform chamber (O'Kelly *et al.* 1978: 258-9). This central mound was then enclosed in a second mound made up of turfs mixed with boulder clay which extended up to the kerb of the monument (figure 7.3). The height of the tumulus is unknown since many destructions damaged the site. Sand was also used to fill the southern and south-western compartments of the structured tumulus of Townleyhall tomb, located three kilometers north of Newgrange (Eogan 1963).

Tomb Z in Newgrange necropolis was also very damaged at the time of the excavations, however it was possible to identify various materials in the composition of the tumulus. The center of the monument is occupied by a layer of turfs covered by a layer of boulder clay. This central tumulus was then covered and surrounded by another sedimentary layer made up of turfs (O'Kelly *et al.* 1978: 287-90).

The large central tumulus of Newgrange necropolis was in a perfect state of conservation and could be explored in its northern and southern parts by three cuttings dug several meters deep into the impressive mass (figure 7.4). These trenches, reaching up to 5,50 meters of stratigraphy, were limited in their horizontal extension by the risks of cairn collapsing (O'Kelly 1982: 86). The information they provided made it possible however to acknowledge the complexity of the structure. The vertical stratigraphy of the tumulus thus shows alternating layers of stones and turfs. On the ground surface the same alternation has been found. Behind kerbstone 95, the ground is covered by two layers of turfs then by a cairn located in the center of the monument.

The cutting made behind kerbstone 2 revealed a layer of boulder clay superimposed by a layer of turf and covered by a stony mass extending to the kerb. In addition, the excavations above the megalithic tomb revealed a core cairn, built around the central chamber and its corbelling roof and made of rounded boulders (O'Kelly 1982: 99-100). This « mini-cairn », whose position and composition distinguish it from the rest of the tumulary material, is similar to the core cairn discovered around the chamber of the eastern tomb in Knowth (Eogan 1990: 124).

The excavations carried out in the Knockmany tumulus revealed the complex nature of the structure (Collins 1960). The megalithic chamber is inserted into a cairn composed of boulders and whose edge presents a slope at 45°. This cairn occupies the greatest part of the surface of the tumulus and is surrounded by a ring made up of various layers of sod and its periphery is defined by a loose stone facing. There is thus a distinction between the core of the tumulus (cairn) and its periphery (mound) which thus form two concentric spaces around the room.

At Barclodiad y Gawres, the tumulus is composed of two distinct materials. Around the chamber several thousand pieces of turfs were piled up on horizontal layers exactly in the same way as in Newgrange, while a compact stone belt encloses the tumulus up to the entrance of the passage (Powell & Daniel 1956: 22-23). Thus a mound composes the center of the monument while a cairn bank constitutes its periphery (figure 7.5).

The analysis of the mound sods revealed eggs of tardigrades or « water bears », microscopic animals living in moist environment. The authors deduce from this result that the turfs had been taken in the marshy valley located to the north of the site.

Under the cairn of Tara passage tomb a small mound was discovered, made on the old ground and located in the center of the monument, behind the tomb. This small mound (2,50 X 1,70 meters surface for 0,15 meter height) was composed of organic material and contained animal bones amongst which was a cattle mandible (O'Sullivan 2005: 27-8).

The excavations carried out in Knocklea tumulus, in county Dublin, revealed a shell midden, located at the center of the monument, behind the chamber, extending on a 2 to 3 m^2 surface for approximately a 20 centimetres height (Newenham 1839; Herity 1974: 173).

These examples show the will to materialize on the surface and in volume several concentric spaces around the chamber of the tombs by the way of distinct tumulary materials. Some of these monuments, and others, have also circular or arc-shaped structures built in order to delimit these concentric spaces. These structures, named enclosures, are set within or sometimes outside the tumulus, and take the form of low facings, ditches or circles of standing stones.

7.1.2. The delimitation of concentric spaces: external and internal enclosures

In the large necropolis of Carrowmore, the low tumuli of the passage tombs are delimited by a kerb of large rough boulders. Sometimes, inside this first circle, other stones are laid out in order to delimit concentric spaces (figure 7.6).

In tomb 1, an arc of 23 boulders forms a second limit parallel to the kerb (Bergh 1995). In tomb 4, two concentric stone enclosures are laid close to the kerb whereas a third double arc encloses the central space of the monument where the chamber stands (Burenhult 1980). An arc of 11 boulders, parallel to the kerb, delimits a second space in the right part of tomb 7. In tomb 27, an internal facing of fifty small contiguous boulders is added to the kerb (Burenhult 1980). In monument 37, a smallest enclosure has been discovered in the eastern part of the site (Bergh 1995). Lastly, in the tomb of Grange North, still in Carrowmore necropolis, a course of several boulders has been built just behind the kerb.

Several structures of delimitation are known among the satellite tombs of Knowth necropolis (figures 7.1 et 7.2). In tomb 12, a facing wall of rounded boulders delimits the central cairn described above (Eogan 1984a: 68). In tomb 15, the central mound is dissociated from the second mound by a setting of small angular stones laid out on the ground and on a part of surface of the first

sedimentary structure. Plus, two lines of two to three stones are symmetrically set on each side of the passage (Eogan 1984a: 102-3). In tomb 18, a line of about fifteen small adjoining stones survived in the south-western part of the tumulus, just behind the kerb (Eogan 1984a: 154).

The structure of tomb 16 is certainly the most complex: on the ground surface, a wall of several courses emphasizes the limit between the central cairn and the peripheral mound while in the mass of the tumulus several arcs of adjoining stones form five concentric enclosures (Eogan 1984a: 123-5).

Lastly, tomb 4 presents three successive internal enclosures formed by six arcs laid out on both sides of the passage of the tomb (figure 7.7). Such internal enclosures, made up of small boulders aligned on the ground, are found in the tomb of Townleyhall whose cairn structure, between the kerb and the tomb, is composed of four complete concentric enclosures linked by low compartment walls (Eogan 1963). Another parallel can be made with the passage tomb of Ballycarty, in county Kerry, where, in a first stage of construction, the facing of the chamber, the internal facing and the external facing of the cairn were perfectly parallel (Connolly 1999).

The large central monument of Newgrange presents several concentric enclosures outside and inside the tumulus (figure 7.4). The outermost enclosure is the circle of large steles standing ten meters away from the kerb. This great unit, of which 12 elements out of the 35 estimated are remaining, was built at the same time as the tumulus whose collapsed material covered the base of the standing stones (O'Kelly 1982: 79-82).

The kerb forms the second external enclosure of the monument inside which several internal enclosures were discovered during the excavation. The cutting trench dug in the northern part of the tumulus revealed two short courses of boulders laid out just behind kerbstones 48, 49 and 50. In the southern part, where the excavated areas were wider, four lines of large rounded boulders (identical to those constituting the central cairn) has been discovered on both sides of the tomb passage, making on the old ground surface three enclosures parallel to the kerb (O'Kelly 1982: 89-91). One can presume that besides the little surface excavated, other structures of this type are still preserved within the tumulus.

Tomb K in Newgrange necropolis is one of the most original funerary structures in the Irish Neolithic (figure 7.3). The monument consists of a simple tomb surrounded by several concentric enclosures of different types which may correspond to different stages of construction (O'Kelly *et al.* 1978: 276-83). Outside the tumulus, a kerb of slightly spaced stelae surrounded the monument. At the entrance of the tomb, immediately behind the kerb, two courses of boulders set on each side of the passage form a first internal enclosure. More rare feature, a horseshoe-shaped ditch of more than one meter deep, constitutes a third delimitation around the tomb. Lastly, a perfectly circular boulder facing, with an added internal arc built in the same technique, marks a last partition of the space around the chamber of the tomb.

Tomb L of the necropolis presents a simpler architecture (O'Kelly *et al.* 1978: 257-9). The tumulus is delimited outside by a kerb of orthostats of which a few specimens survived the destruction. A second enclosure, located in the south-west part of the tumulus, was discovered during the excavations. Composed of small boulders lined up in parallel to the kerb, the structure forms a

delimitation in the middle of the first sedimentary ring (turf mound).

The vestige of an internal enclosure was also identified under the eroded tumulus of tomb Z (O'Kelly *et al.* 1978: 292). Made up of six boulders, the arc-shaped line extends three meters away from the western end of the passage.

The site of Bryn Celli Ddu (figure 7.8), in Anglesey, presents a complicated history during which a passage tomb succeeded a first concentric structure formed of two elements: a ditch and a stele enclosure (see section 1.1.3). The tomb was built on the site, was adapted to its spatial configuration and was perfectly integrated into it. Thus, the chamber of the tomb is today in the center of three concentric enclosures (Hemp 1930: 198-204). The first one is outside the tumulus and consists of a stele enclosure of which no vestiges survived. The second enclosure is the cairn kerb doubled approximately a meter away by an internal facing ; both circles being established in the old ditch dug previously to the construction of the tomb. Finally, the third enclosure, inside the tumulus, is made by the vestiges of the stele circle of the first site of which there remain only some orthostates and sockets. In spite of the chronological differences between these various constructions, all are established around a single center, occupied since the second phase by the backstone of the passage tomb.

In Ireland, other passage tombs present several parallel enclosures. Tomb 1 in Knocknarea necropolis, in county Sligo, is enclosed by a circular bank and a kerb (Bergh 1995). In the monumental complex of Banagher, north of Loughcrew in county Cavan, the vestiges of a passge tomb is standing in the center of three concentric enclosures: a circle of stelae, a kerb and an internal enclosure marked by four remaining boulders in the north-west part of the monument (Cody 2002).

In county Kilkenny, the tomb of Baunfree is built in the center of a double stele enclosure (O'Nuallain & Cody 1987). Finally, the tomb of Ashleypark, of Linkardstown type, is covered by a cairn, itself covered by a mound. This two-layered tumulus is framed by three concentric enclosures formed respectively by a circular bank and two ditches (Manning 1985; O'Sullivan 2006: 669).

7.1.3. <u>Synthesis</u>

This brief study on the tumulus structures of passage tombs is far from being exhaustive. On the one hand, all the monographic literature on the Irish monuments has not been examined and this study is based primarily on monuments with parietal art. In addition, a great part of the original documentation is not available since many monuments have not been excavated or were destroyed. In spite of these gaps, the elements described above (figure 7.9) prove the complex nature of the tumulary structures whose external aspect, homogeneous and uniform, is quite misleading.

What was the builders' intention behind the making of these invisible structures? Two different interpretations can be opposed: a symbolic intention and a will of technical efficiency. In the case of compact earth (Knowth 2) or a central cairn built around the tomb (Knowth 12, Knowth 16, Newgrange) the practical reason can be offered since such structures have a use in strenghtening the megalithic architecture. In the same way, the courses of boulders laid out around the chamber

of certain monuments can be understood as marks used in the layout of the internal layers of the tumulus (O'Kelly 1982: 90 ; Eogan 1984b: 359). But is this the only *raison d'être* of these various elements ? Why then put such care into the choice of the materials (naturally rounded boulders) and their arrangment (regular alignment or spacing) since they will remain invisible under the tumulary mass?

Certain structures are clearly not functional and thus symbolic. It is the case of the sand mound which surrounds the chamber in Newgrange L or the turf mound around the chamber in Barclodiad y Gawres: these materials have not the necessary properties to stabilize the orthostats which, in both monuments, are maintained in deep sockets. The slabs thus do not need the support of these mounds which, in any event, could not fulfill this function. In Knowth tomb 16, several stone courses are arranged in the upper mass of the cairn and do not aim to retain any tumulary material.

From another point of view, why build internal structures, on the one hand, and why use several materials, on the other hand, when the same result could be obtained by the simple accumulation of a single material? What is the interest, in Barclodiad y Gawres, to seek turfs in a marshy area (Cassen 2000e: 727) located several hundred meters away whereas rock, perennial material, outcrops next to the monument? Why deposit a bed of boulder clay in the center of the tumulus in Newgrange L? What is the point of the sedimentary layer, containing animal bones, under the cairn of Tara? What is the role of the shell layer laid out in the center of Knocklea tumulus? If one goes further, what is the function of a cairn which does not contain any tomb (Loughcrew D - Coffey 1896b)? These structures, just as some practices like foundation fires lit on the ground of tumuli before their erection (O'Kelly 1969: 22; Herity 1987: 108-9; Eogan 1968: 308), do not have any architectural functionality and can be explained only by symbolic reasons.

We cannot know today what value was attached to such and such a material or what significance was behind the layout of the tumulary structures. We can only rely on the archaeological facts and note that the tumuli are structures made up of several superimposed covers and that a particular importance was attached in the differentiation of concentric spaces organized around the chamber of the tomb. The tumulus is thus far from being a simple envelope at the service of the tomb ; it forms a real architecture in which the tomb plays a particular part. Let us see now what is the place of the megalithic structure within the tumulary system.

7.2. The place of the tomb : doorways, thresholds and the way through

7.2.1. <u>From the outer world to the center of the tumulus : the only way and its successive thresholds</u>

The tumulus and the tomb are two structures which are usually regarded as two distinct entities in the monument. This Cartesian approach made it possible to point out the respective specificities of both elements, but it also means they must be regarded as independent structures. Do not there exist on the contrary any links between the structure of the tumulus and the megalithic structure of the tomb? The analysis of the internal elements of the tumuli indeed shows a strong correspondence between the spatial partitions of the tumulary system and the spatial partitions of the tomb.

In tomb 4 in the necropolis of Carrowmore, three concentric boulder circles are organized around the chamber and inside the kerb (figure 7.6). These enclosures cross the tomb in significant places: the outermost circle is tangent to the beginning of the passage ; the second one reaches the first third of the passage where a sillstone marks a continuity between the two stone arcs laid out behind the orthostats ; and the third circle perfectly encloses the chamber and separates it from the passage.

In Knowth tomb 4, three successive internal enclosures are set between the kerb and the sepulchral chamber (figure 7.7). The first stone course reaches the kerb's incurve which marks the entrance of the passage of the tomb. The second internal enclosure is formed by two courses laid out symmetrically on both sides of the passage at the place where has been placed the first sillstone, signalled by its remaining socket. The third internal enclosure of boulders in the tumulus corresponds to the second sillstone of the passage. Lastly, the frontier between the passage and the chamber is marked by the internal limit of the mound. Thus, to the four internal limits of the tomb correspond four internal limits in the tumulus.

The tomb 15 of the necropolis is less complex (figure 7.2). However, excavations have identified two small stone courses organized symmetrically on each side of the passage. These two vestiges of the same internal enclosure are not laid out randomly. Indeed, each one constitutes the prolongation of a small sillstone placed in the middle of the passage of the tomb.

The links between tumulary structures and tomb structures are also explicit in Knowth tomb 16. The main internal enclosure of the tumulus is formed by a wall of several stone courses enclosing a central cairn and separating it from the peripheral mound. The circle of this low enclosure wall is signalled inside the tomb by a large sillstone laid out across the passage.

In the large tumulus of Knowth, several relations between the core cairn and the architecture of the eastern and western tombs are notable (figure 7.10). This central cairn incorporates the chamber of the western tomb and the chamber and the antechamber of the eastern tomb[1]. In the western

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[1] The plan of the central cairn of Knowth tumulus was presented by G. Eogan in a paper addressed in March 2008 to the Heritage Council, downloadable on the Internet (www.heritagecouncil.ie/archaeology/ bru_na_boinne/abstracts.html).

tomb, the line of contour of the cairn corresponds to the point where the axis of the passage is modified to mark an angle. In the eastern tomb, the outer contour of the core cairn corresponds to a point of narrowing of the passage, between orthostats 12 and 85, as well as a rising of the capstones (RS26 and 27). The revetment of the central cairn incurves on each side of the passage of tomb East and makes a V-shaped facing that ends on orthostats 27 and 68. Thus, the true meeting point between the cairn mass and the tomb coincides with the location of the first sill on the passage floor.

Moreover, above this passage sill, G. Eogan unearthed an original structure built over capstone 43 (Eogan 1990: 122-3). We have seen previously that this capstone, carved all over with parallel chevrons, is symbolically associated with the ground sillstone (section 6.5.1.1). Above this lowered lintel, the excavation revealed a horizontal U-shaped stone setting whose open side is directed outwards the tomb (figure 7.11). One notes here a complex association between tomb structures (sill and lintel), parietal art (parallel chevrons) and internal structure of the tumulus (core cairn).

A similar structure exists in Newgrange. The excavations carried out above the roof of the passage revealed two slabs, named X and Y, laid out in parallel to the passage contrary to the other capstones. Actually, these two elongated stones are used as supports for a lintel on which sits the first stone course of the central cairn which covers the chamber of the monument (O'Kelly 1982: 99). Here also, a U-shaped stone setting opens outwards the tomb and marks the limit of the core cairn. As in Knowth, a threshold inside the tomb corresponds to this limit: this one is not materialized by a sillstone on the ground but by a lowered lintel (RS12). There is thus well a relation between the tumulary structure, invisible, and the architecture of the tomb.

In the peripheral part of Newgrange tumulus, four courses of rounded boulders were discovered on the old ground around the passage of the tomb (figure 7.4). The two internal enclosures thus formed within the tumulus correspond once more to two passing structures inside the tomb. The first course, located behind the kerb, reaches orthostats R2 and L2 and coincides with the entrance of the « roof box » whose capstone presents angular signs (boxed triangles) on its outer side face. This lintel can be compared with Fourknocks stone A whose location corresponds to the entrance of the passage. The second internal boulder course in Newgrange is set behind orthostat L8 and coincides, inside the tomb, with the entrance of the vaulted antechamber.

A concordance between tumulary enclosure and tomb threshold can also be pointed out in Newgrange tomb K (figure 7.3). The circular ditch, dug within the kerb enclosure, is symbolized inside the tomb by a sillstone marking the entrance of the passage. The third sillstone of the tomb, which perhaps marks the chamber entrance, corresponds perfectly to the circular boulder enclosure.

In tomb Z, the single internal course of stones forms a limit at the entrance of the chamber.

In Barclodiad y Gawres, no relation of this type was discovered since the excavations of the tumulus were limited to some cutting trenches. One can however suppose without much risk that in the area of the passage entrance, the limit between the cairn belt and the central mound corresponds to the sillstone laid out in front of orthostat L4 (figure 7.5).

Through these various examples, it appears clearly that a close relation exists between the invisible structures of the monument (internal enclosures of the tumulus) and its visible structures (plan of the tomb, thresholds). The tomb thus has a particular place in the tumulary system. More than a simple box for funerary deposit, this architecture forms the access path which connects the outer world to the central space of the tumulus. While penetrating into the tomb, the visitor walks gradually accross the concentric enclosures of the tumulus and reaches its center. The tomb is actually the only way to penetrate into these parallel spaces.

Thus, another vision of the relations between both structures must be proposed: the tumulus is not a protection at the service of the tomb, the tumulus is the raison d'être of the tomb, the necessary space into which it is built and by which it exists. So the symbolic value of both structures is at least of the same importance.

One understands then the emphasis put on the axis of the tomb and its different thresholds. As demonstrated above, the axis is the leading line of the tomb and of a part of the iconography. The axis is indeed the single way allowing to enter the closed spaces of the tumulus. In addition, the thresholds of the tomb, materialized by specific structures (sillstones, lintels, jambstones) and distinguished by a proper iconography, must be regarded as the visible representations of the successive enclosures surrounding in the shade the core of the monument.

7.2.2. From the tomb to beyond the tomb : the symbolic doorways

The various doorways and thresholds of the tomb are signalled by specific architectural structures and specific carved signs. However, in the final spaces of the tomb, the same structures and the same signs are displayed in order to announce thresholds that cannot be walked across. These impassable thresholds are the backstones and the cell ground (or stone bassins). These thresholds, announced by the architecture and the iconography, do not open onto real spaces and then can be regarded as symbolic doorways.

7.2.2.1. The backstone

In all passage tombs of Europe, the backstone is very often emphasised by different means: central location, large dimensions, great carved ornamentations, etc. In Ireland, certain carved figures are specific to backstones (circular figures with arc appendages) and the presence of « threshold-signs » (rows of zigzags, scalariform signs, line of circular signs) is especially common there.

Orthostat C8 in Loughcrew tomb T is carved with four lines of parallel chevrons and three large scalariform signs, two types of signs usually associated with architectural limits (see section 6.5). Moreover, the top side face of the slab has parallel arcs which echo the arcs carved on sillstones 1 and 3 placed in the axis of the tomb (figure 6.14). The backstone, by its iconography, can be thus regarded as a symbolic sillstone.

The backstone of Knowth western tomb (orthostat 42) can be interpreted in the same way. The large boxed arcs carved on the stone reproduce the arcs carved on the entrance stone of the

tomb (kerbstone 74) and on the second sillstone of the chamber (figure 6.15). Moreover, orthostat 42 is distinguished from the others by its low height (0,80 m) which gives it more the appearance of a sillstone (Eogan 1990: fig. 5). Thus, by its iconography and by its low position, the backstone of the western tomb is characterized as a threshold structure.

The same consideration can be made on the backstone of the eastern tomb (orthostat 47) whose carvings reproduce the motif of the entrance stone (kerbstone 11) and whose dimensions are also twice as low as the other orthostats of the tomb (Eogan 1990: fig. 4).

The same process is used in the transeptal tomb of Park Breos Cwm (Severn-Cotswold group), in Wales. The backstone, only 40 cm high, distinguishes itself from the other orthostats of the monument, twice as tall, and clearly echoes the sillstones set at the entrance of the chamber and side cells (Whittle & Wysocki 1998).

In tomb B of the Calf of Eday (Orkney), a low slab framed by two jambstones is placed against the back wall of the chamber where it does not play any functional role (Calder 1937).

In Goward court tomb, the back wall of the chamber is made of a slab surrounded by two jambstones just as are the two sillstones which precede it (Davies & Evans 1932).

The backstone of Loughcrew tomb L is characterized by a vertical central line which divides the stone into two parts (figure 6.16). The theme of the long central vertical line is usually carved on entrance stones, such as in Knowth (kerbstones 11 and 74), Newgrange (kerbstone 1) and Lyles Hill (carved sillstone).

Other signs in the arrangement of the burials indicate a function of symbolic doorway ascribed to the backstone. For example, in Bryn Celli Ddu, the destruction of the first monument (stelae enclosure) caused the burying of the central burial pit then covered by a late carved stele. The burial and the stele were then hidden under the tumulus just behind the backstone of the passage tomb. The tomb is thus built according to the burial pit, located at the center of the tumulus, and the backstone forms an unpassable limit between this « sacred » center and the accessible space of the chamber. In the passage tomb of Tara, funerary deposits were also inserted behind the backstone (O'Sullivan 2005: 118).

A similar principle was observed in some French funerary monuments. In the dolmen of Pech 1 (Lot), an opening had been made between the backstone and a side orthostat, looking onto an empty and inaccessible final cavity (Carrière & Clottes 1970; Leclerc & Masset 1983). In the gallery grave of La Chaussée-Tirancourt (Somme), the same opening was created on a side of the backstone and accesses a cavity devoid of any funerary objects. J. Leclerc interprets this blank space, located behind the backstone, as a sacred space, distinct from the inner spaces of the tomb that the author describes as sepulchral and ceremonial (Leclerc 1997: 402-3).

For C. Masset, these inaccessible axial annexes are the symbolic representations of the other world, a space located between the living and the dead (Masset 1997: 110-3). The author quotes other examples of such symbolic structures: the passage tomb of Cueva de la Viera (Antequera, Andalusia), whose backstone has a round window opening onto a false chamber (Obermaier 1919)

; the gallery grave of Prajou-Menhir (Trebeurden, Côtes d'Armor), which has a final cell completely closed by a vertical slab which forms the backstone of the tomb.

The latter characteristic is also present in other Armorican gallery graves (L'Helgouac'h 1965: 275-7) and in many Irish wedge tombs in the west of Co. Tipperary (Shee Twohig 1990).

Maybe the same principle is represented in the passage tomb of the Knowe of Lairo in Orkney. During the construction of the tomb, the third compartment, located at the end of the chamber was closed by a dry stone wall but not filled up (Grant & Wilson 1943). The builders thus deliberately created an empty and inaccessible space behind the back wall of the chamber. Without any functional explanation, one can only guess symbolical motivations behind this condemned space. In these Breton, Irish and Scottish examples, the backstone or back wall is used as intermediate wall between an accessible space and an inaccessible space. Two spaces separated by an impassable threshold.

A detour through the Neolithic hypogea of Sardinia consolidates the hypothesis the interpretation of a symbolic doorway on the back wall of some Irish tombs. These Mediterranean monuments are contemporary with Irish passage tombs and present an identical organization of the architectural space: central axis, passage, antechamber, central chamber, side and axial cells (Melis 1994). Local parietal art is also comparable to Irish art, with the use of geometrical signs (spirals, chevrons), but is also characterized by its own figures (Tanda 2000). Among these original themes is the representation of false doors, painted or carved, and located on the back wall of the hypogean chamber, opposite to the entrance of the tomb. These doors, like the backstone in Knowth western tomb, are often represented by boxed half-rectangles, a perspective effect which can be emphasised by a relief carved in reverted staircase (Tanda 1984, vol.2: 70-1, fig.7).

There is an extremely great number of hypogea with false doors and an inventory can not be made here. We will simply quote by way of illustration the hypogeum IV of Pubusattile necropolis, in the province of Sassari (Tanda 1992). The tomb presents an antechamber, a central chamber and two lateral cells (figure 7.12). The entrance to the chamber is a quadrangular opening presided by two sculpted cescentiform figures. On the back wall of the chamber, opposite to the entrance, a great quadrangular motif surmounted by two cescentiform figures is painted, thus repeating exactly the image of the entrance doorway. Two identical doorways are then set on the same axis, one is real, the other is symbolic. One can also notice with interest that in this tomb as in Ireland, parallel rows of chevrons are used to mark the entrance of the antechamber.

The theme of the false door represented on the back wall of some passage tombs is also common in Etruscan necropolises of central Italy. The funerary monuments of these protohistoric people look disconcertingly like Irish or Scottish tombs: rounded tumulus with a vertical edge, an access passage, a central chamber, side and axial cells. The representation of false doors is very current inside those monuments and they represent the access towards the residence of the deceased and allow the living to give him worship and to keep a link with him (Jannot 1984).

The same function is attached to the false doors carved on the back wall of Egyptian mastabas. Made so as to be « opened » from outside and not from inside the tomb, these doors allow

the deceased (whose body rests in a crypt under the monument) to come from the other world to enjoy the offerings deposited by the living (Fisher 1996).

7.2.2.2. The ground of the side recesses and the basin stones

In the passage and chamber of Irish passage tombs, the scalariform signs and the lines of circular signs are systematically associated with thresholds (sections 6.5.2 and 6.5.3). In the cells and recesses (section 6.6.3), these « threshold-signs » are laid out at the feet of the orthostats and are associated with the horizontal limit of the ground (DhS.C12; Kh14.Or8; LcT.C2; LcU.C10) or with the basin stones (DhN.C19; LcI.C13; LcL.C5).

One can understand easily how the ground surface is a symbolical limit. In the ground are buried the funerary remains and the side recesses or cells are the privileged places for burials. The function of the stone basins, which are typical Irish elements, is however much less clear (Herity 1974: 123-4; O'Kelly *et al.* 1978: 341-2). In Loughcrew tomb L, a great many cremated bones was discovered under the basins laid out in the chamber recesses (Conwell 1866: 368-9). In Fourknocks, the cremations were deposited over such slabs and then sealed by a stone pavement (Hartnett 1957: 214-8). In Newgrange tomb Z, funerary remains were deposited over the stone basin (O'Kelly *et al.* 1978: 342) whereas in the main tomb of the necropolis, the only human remain associated with basin stone were discovered below the structure (O'Kelly 1982: 105-7).

The state of the monuments is stagnant in time and it is difficult to perceive the practices of cremations handling around these stone basins. Perhaps however, their association with the deceased remains gave them a particular status and a value of symbolic interface.

In the « annexe » of Dowth northern tomb, a massive rectangular slab is laid out on the ground of the last cell. The slab is marked by a large natural hole which opens onto the ground (O'Kelly & O'Kelly 1983: 153-4). In megalithic architectures all around the world, slabs opened with a hole are common but are always set vertically at the entrance of the monuments and are described as « hole stones[2] ». The presence of such a slab on the ground of a side cell is thus an exception which is not uninteresting for our matter. The horizontal arrangment of this « window stone » can indeed be interpreted as a will to point out the symbolic threshold value that represented the ground surface in this funerary space.

7.2.2.3. The symbolic doorways in the kerb

The central axis of the passage tombs goes virtually across the whole monument and gives the orientation of the tomb as well as the symmetry of the tumulus. The kerb is crossed at two points by this axis: in front of the entrance to the tomb and on the opposite side of the entrance. In Newgrange, the opposite kerbstone, K52, is richly decorated and has a broad central vertical line, a motif usually carved on entrance stones of tombs (figure 6.16).

In Dowth tumulus, the kerbstones located on the opposite side of the entrance of the northern tomb (K48 to K55) are incurving into the tumulary mass, an architectural process usually

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[2] « Dalles-hublot » in French.

reserved for tomb entrances.

In Knockroe, the same device, more discrete, can be seen in the layout of the kerbstones located at the opposite side of the western tomb (figure 6.9). Among these kerbstones is the only carving of the northern part of the site : the boxed arcs represented on kerbstone K15 are set in the axis of the western tomb.

In these three tombs, the parietal art and the layout of the kerbstones signals the presence of an entrance on the opposite side of the known tombs. However no tombs have been found in the northern part of Knockroe cairn (O'Sullivan 1993). In Newgrange, the cutting dug behind kerbstone K52 could not prove right the beliefs about an opposite tomb (O'Kelly 1982: 65) and in Dowth, no tombs are known in the eastern part of the tumulus. If these entrance structures are not used for any tomb, undoubtedly a symbolic function should be considered. This is the hypothesis briefly suggested by G. Eogan about Newgrange kerbstone K52 and Dowth kerbstone K50 which « may have functionned as symbolic 'exits' or as 'back sights', or even as a blind entrance as at some Severn-Costwold sites like Ty-isaf » (Eogan 1986: 183-4).

Indeed, in the passage tombs of the Severn-Cotswold group, the construction of blind doors at one end of the trapezoidal cairn is quite current. These structures were often regarded as lures intended to mislead plunderers; however, their symbolic function is also recognized (Corcoran 1969a: 96).

The concept of symbolic doorway in the cairn edge, frequent for example in Phrygian tumuli (Mellink 1979 ; Roosevelt 2006), was then certainly not unfamiliar to the passage tombs builders in Ireland. The cairn of Slievenamon in county Tipperary brings an additional proof to this theory (figure 7.13). The site stands at the top of the eponymous mountain and forms the most western element of a monumental system in which the cairn of Knockroe takes part (O'Nuallain & Cody 1987; O'Sullivan 1993: 15). The monument is not a passage tomb but a simple cairn built around a natural rock formation. The latter consists of a large quadrangular block whose one face presents an quadrangular cavity. The cairn is built above and behind the block which looks perfectly like a monumental entrance of a passage tomb, with two pillars and a lintel forming an impressive portal.

The same mythological tales exist about the monument as about the Boyne valley tombs. In Slievenamon, Fionn McCumhaill chases after an inhabitant of the cairn and fails in front of the door of the monument which is closed on the thumb of the hero. The wounded finger then confers to the character the gift of knowledge of the other world (O'Sullivan 2006: 669-70; Ó hÓgáin 1990: 214).

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The internal structure of the Irish monuments cannot thus be reduced to a simple funerary deposit place. A whole set of representations explains the complexity of the architecture of the tomb and its relations to the internal structures of the tumulus. These representations make a system and the role of the tomb within this system is to form a path between the outside world and the center of the tomb, through the concentric spaces of the monument delimited under the tumulus by enclosures and inside the tomb by thresholds. The exact center of the tumulus is in most cases inaccessible and is

located behind the backstone. The latter can be interpreted as a symbolic doorway after architectural and iconographic observations and in comparison with other contemporary contexts in Western Europe.

About the Orkney-Cromarty passage tombs, C. Richards gave a similar interpretation of these long compartmented architectures. For the archaeologist, the succession of symmetrical partitions laid out on each side of the passage is the metaphorical representation of a succession of doorways leading to the backstone, regarded here as the ultimate doorway unpassable by the living (Richards 1992).

J. Thomas proposed a similar interpretation in analyzing the burial pratices in the laterally-chambered cairns of the Cotswold-Severn group. In simple gallery tombs, articulated skeletons are placed near the entrance of the tomb whereas disarticulated skeletons are found at the back of the tomb. The bodies were thus deposited at the beginning of the structure until their decomposition then the skeletons were removed into the final parts of the monument. This funerary practice is interpreted by J. Thomas as the symbolic representation of the journey accomplished by the deceased: the body's successive displacements thus constitutes a « movement in space which symbolised the stages undergone by the individual after death » (Thomas 1988: 548).

It is thus possible to interpret the tomb as the representation of the journey accomplished by the deceased through the concentric circles of the other world (cf. Dante's nine concentric circles of Hell). But that remains an interpretation, an unverifiable assumption. In a more careful way, we can affirm from the archaeological elements presented above that the tomb and its passage form the only path through a set of well delimited concentric spaces in which human remains are deposited.

Another aspect of these passage tombs, emphasized by parietal art, has to be analyzed now: the systems of opposition on both sides of the axis of the monument.

7.3. The systems of axial opposition

The spatial analysis of the carvings brought to light some systems of opposition organized around the axis of the monument (section 6.4.2). Thus, certain slabs or groups of slabs cut across by this virtual line present, on each sides of a carved or natural central demarcation, several signs of different nature or with opposed orientations. Parietal art thus testifies to a deliberate distinction between the right half and the left half of the monuments.

Up to what point this principle of axial opposition is manifested by the other components of the passage tombs? We will see first how the architecture present some deliberate distinctions between structural elements laid out symmetrically on each side of the axis. The analysis will then focus on the layout of the funerary objects and human remains inside the tombs.

7.3.1. Oppositions of structural elements

The passage tombs around the Irish Sea are characterized by many compartmented chambers. Thus, the plan of the tombs shows a will to divide the sepulchral space into two opposed sets of one or more pairs of cells laid out symmetrically on both sides of the axis of the monument, axis where is placed the passage and the surface of circulation in the chamber. The two opposite halves of the tomb could be perceived like and conceived as two symmetrical and harmonious elements, but the plan of the structures, the choice of building materials and their layout show on the contrary a clear distinction between them.

7.3.1.1. Oppositions of structural elements in the tomb and emphasis on the right side

The emphasis on the right side in the architecture of Irish passage tombs is a characteristic pointed out by several archaeologists. During the excavation of the tomb of Townleyhall, G. Eogan observed a clear opposition between the orthostats of the right part, large and well aligned, and the left orthostats, smaller and irregularly laid out (Eogan 1963).

In his comprehensive book on Irish passage tombs, M. Herity notices that in Newgrange and in several tombs of Loughcrew, side cells on the right-hand side are larger than those on the left-hand side and are also emphasized through richer carvings and stone basins (Herity 1974: 123; see also Shee Twohig 1996: 79).

In the western tomb of Knockroe, M. O'Sullivan stresses that the right wall of the tomb is emphasized by a large pink sandstone orthostat (O'Sullivan 1997: 26).

For R. Bradley, the carvings on the right wall of Maeshowe passage tomb are characterized by the location of signs in basal and summital position and by the complexity of the compositions (Bradley *et al.* 2000: 60).

Several architectural characteristics emphasing on the right side are found in many monuments (figures 7.14 and 7.15). In the cruciform or multicellular tombs, the right cells are often larger than the left ones, causing sometimes an axial distortion of the chamber. This can be observed in the tombs of Barnasrahy 5 (Herity 1974; Bergh 1995), Knowth 6 and 17, Loughcrew H, I, L and T, Newgrange and Seefin (Macalister 1932). The southern tomb of Dowth and tomb K in Newgrange

present a single side cell set off the right wall of the chamber, and Carrowkeel tomb B (Macalister *et al.* 1912) as well as Newgrange tomb Z have a single side recess in the right wall of the passage. On the other hand, no single side structure is known in the left side of any tomb.

The western tomb of Knowth and Carrowkeel tomb H (Macalister *et al.* 1912) form an original architectural type, close to the Breton angled tombs (Childe 1933: 136 ; Herity 1974: 194). In both monuments, the angle marked by the passage directs the chamber into the right part of the tumulus.

In the northern tomb of Dowth and in Barclodiad y Gawres, the side cell on the right-hand side is extended by an « annexe » which increases considerably its architectural signification at the expense of the left cell.

In other tombs, the cell on the right-hand side has a stone basin whereas the left cell is empty: Knowth East, Knowth 2, Loughcrew H and I, Seefin (Macalister 1932). In Newgrange, a stone basin resting on a block is opposed to a basin resting directly on the ground. Here also, no contradictory example is known.

Lastly, in the passage tomb of Bryn Celli Ddu, which has no side cells, the chamber is larger on its right part, and in Maeshowe passage tomb the final recess is clearly projected on the right whereas the rest of the architecture shows a rigorous symmetry (Stuart 1864).

Thus, inside passage tombs, the structural elements laid out on the right of the monumental axis are subjected to a particular emphasis that is never found in the left side. Whatever the orientation of the tomb, there is then a clear opposition between the two halves of the internal architecture on both sides of its line of orientation.

It should also be brought back to mind that parietal art also takes part in this imbalance by affirming a more important presence in the right half of the tomb (section 6.2.1). Thus, its role in the systems of opposition is as much qualitative (opposition of signs of different nature) as quantitative (majority of signs in the right part).

7.3.1.2. *Oppositions of structural and symbolic elements within the tumulus*

Is the principle of opposition, observable in the tomb, also manifested in the arrangement of the tumulary structures? The excavation reports on Irish monuments show that the principle is much less perceptible in this part of the architecture. The materials and the structures do not display clear distinctions on both sides of the virtual axis of the monument and symmetry seems to have been more looked for.

On the other hand, the axial opposition of tumulary materials is one of the characteristics of the British long barrows. In Beckhampton Road (Ashbee *et al.* 1979: 228-50) and Ascott-under-Wychwood (Benson & Whittle 2007: 95), a line of stakes materializes the central axis of the mound and delimits two opposed sets of bays filled up with different materials so as to distinguish both halves of the monument.

The same principle characterizes some laterally-chambered cairn of the Severn-Cotswold group. In the monument of Gwernvale, each half of the cairn is covered with a layer stones of distinct geological composition (Britnell & Savory 1984). In addition, in many monuments of the area, the side tombs opposed on each side of the axis of the cairn are often built with slabs whose

morphology and geological nature are clearly differentiated (Cummings *et al.* 2002: 63-4).

In Irish passage tombs, some symbolic practices carried out before the construction of the tumulus sometimes are proof of a binary conception of the tumulary space in which objects of different natures are deposited (figure 7.16). Under the cairn of Baltinglass, P. Walshe identified two burned areas on the south-east and south-west of tomb I. The largest burned surface is on the eastern part, revealed by a layer of ashes and charcoal in which hazel nuts and a polished axe blade were discovered. In the western zone, the cremations contained grains of wheat (Walshe 1941: 227-8). The function of both burned surfaces and of the elements buried with them is doubtlessly of a symbolic nature and they can be regarded as the vestiges of a foundation rite. Separated by the axis of tomb I, both surfaces take part in a system of axial opposition based on the distinct nature and origin of the deposited plants: hazel nut is a wild and local food whereas wheat is an exotic cultivated food brought by the neolithization. In addition, an opposition can be seen between the axe, a sharp object, and a polished white stone, smooth and oval-shaped, deposited to the west of tomb I (Walshe 1941: 226).

A similar system exists in the cairn of Carrowmore tomb 7. Behind the left wall of the tomb, the excavations revealed a zone of concentrated crushed chert whereas in the right half of the cairn a layer of cremated human bones was discovered (Burenhult 1980). Here also, two surfaces containing distinct objects are laid out on each side of the axis of the tomb.

7.3.2. Opposition of funerary deposits

The preservation of the funerary deposits inside passage tombs is often very bad. When the natural degradation of the monuments did not cause the destruction of the remains, ancient and modern plunderings often emptied the tombs of their contents and thus destroyed rich information on the use of these structures. However, some well preserved monuments provided an important quantity of furniture and a certain number of bone remains. In several cases, the layout of these remains reveals a clear axial division of the funerary space.

7.3.2.1. Opposition of grave furniture

The funerary furniture of Irish passage tombs is distinguished from other British monumental contexts by its richness and its diversity (Herity 1974: 125-44). Apart from stone tools and ceramics, which forms the usual furniture of court tombs (Herity 1987), passage tomb furniture is characterized by bone or antler pins, polished stone balls and various beads and pendants.

In several monuments, these objects of a different nature are dissociated and distributed in distinct spaces inside the tomb. In Newgrange, various objects were discovered in the chamber and side cells of the tomb (O'Kelly 1982: 192-6). Among these objects, bone pins and chalk or polished stone balls present a very clear spatial distinction: the five fragments of pins were all discovered in the left (western) cell whereas five balls and a double ball were with the human remains in the eastern cell and in the right part of the passage and chamber (figure 7.17). Another ball, discovered in the left part of the chamber, is in a disturbed context (animal burrow) and could then have been deposited originally in the right half of the tomb. These two types of objects are thus opposed by their shape

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(pointed vs rounded), their composition (lithic vs organic) and their spatial distribution on both sides of the axis of the monument (left vs right).

The same principle organizes the distribution of the funerary objects in the eastern tomb of Knowth's large tumulus. In this tomb, also of a cruciform plan, the furniture can be classified into two categories: bone and antler pins on the one hand, beads and pendants on the other hand (Eogan 1986: 41). Each one of these categories shows a preference for one of the side cells of the tomb. Thus, the left (southern) cell contains a majority of pins (10) against a minority of pendants (3) whereas the same objects are in reverted proportion in the right (northern) cell: 3 pins against 12 beads and pendants.

Two similarities can be pointed out between the eastern tomb of Knowth and the tomb of Newgrange: first, the pins prefer the left part of the architecture, and moreover, the final cell is characterized by the absence of objects (in Knowth two unstratified bead fragments are certainly in secondary position) showing thus well the intention to divide the deposits according to the central axis of the monument.

The tomb L in Newgrange necropolis was largely deteriorated by ploughing and by the construction of a lime kiln which completely destroyed the passage and a part of the chamber and of the right cell of the tomb. The furniture discovered is certainly partial then and the position of the objects is difficult to guarantee. Nevertheless, the vestiges discovered in undisturbed context in the chamber and in the three cells seem to confirm partly the model ruling in Knowth and Newgrange (figure 7.18). Indeed, an opposition between the two lateral cells is observed through the distribution of four pins and a bone « chisel » in the left (western) cell, and of a chalk ball in the right cell (O'Kelly *et al.* 1978: 269-72). However, other pins were discovered in the central chamber and a ball and a pin were also associated with the burials of the final cell. It is regrettable here that the exact location of these objects is not specified in the excavation report, preventing from determining if they were also spatially organized according to the central axis of the monument. Lastly, the initial location of a chalk ball and of three bone pins, found in the loose material in the lime kiln, will never be known.

Thus, the objects in context in Newgrange L confirm the model of axial opposition of the funerary furniture (pins on the left, balls on the right) but this result must be moderated by the partiality of the available information.

In Knowth tomb 2, the rare furniture also presents an axial opposition. In the left (east) cell were discovered a stone ball and a hemispherical object whereas the right (western) cell contained a bone pin (Eogan 1974). Here also, therefore, the organization of the deposits results in an axial opposition between pins and balls.

The excavations by E. Conwell in Loughcrew necropolis revealed several interesting objects whose arrangement seems here again to correspond to a precise order (figure 7.19). In the cruciform tomb F, the archaeologist discovered a bone pin in the right cell and a « brown ironstone ball » of an exceptional diameter (7,7 cm) in the left side cell (Conwell 1866: 361-2; Herity 1974: fig. 98).

In the cruciform tomb H, no less than six stone balls were found in the right-hand side cell, opposed to a great number of bone objects (« knives », incised pendants, etc.) discovered in the left

cell (Conwell 1866: 363-4).

The passage tomb of Tara presents the most important furniture collection in Ireland, a richness which contrasts with the very simple plan of the internal structure (simple rectangular chamber, without a passage, divided into three compartments). Inside the tomb were discovered 53 balls, 46 pins, 68 beads and pendants and 200 bone tubes or « spacers » (O'Sullivan 2005: 260-73). The precise localization of these many objects was not always specified at the time of the excavations but where their position is known, no particular pattern appears in their spatial distribution.

The tomb does not present side cells like the other monuments referred to above, however small cists were arranged behind orthostats on the left-hand side (cist III) and on the right-hand side (trunk I and II) of the megalithic chamber. These cists, located outside the chamber space, were accessible by narrow openings left between the orthostats; thus one can compare them with the side recesses and cells of the transepted or compartmented passage tombs. Contrary to the grave goods inside the chamber, the filling of the side cists presents a selection in the furniture distribution. If beads and bone pins are indifferently distributed in the three cists, balls are exclusively placed in cist II (north) whereas pendants, particularly elongated and richly decorated, are exclusively found in cist III, located on the opposite side (O'Sullivan 2005: 237).

The axial opposition of funerary furniture has also been pointed out in the long cairn of Ty Isaf, in Wales (Cummings *et al.* 2002: 64). The trapezoidal cairn has two opposed lateral chambers, accessible from the sides of the structure. The western tomb contained a minimum of 17 individuals accompanied by two arrowheads, an axe, a ceramic vessel, a bone pin as well as remains of ox, sheep and polecat. The eastern tomb, on the other hand, contained one individual, accompanied by six ceramic vessels and remains of pigs, sheeps and dogs (Grimes 1939).

In Irish monuments, stone balls often intervene in opposition plays where they are dissociated from pins or other pointed or elongated bone objects. It is in addition interesting to note that these balls are mainly concentrated in the right part of the architecture (Baltinglass, Newgrange, Newgrange L, Loughcrew H, Tara) and more rarely in the left half (Knowth 2, Loughcrew F). This preference is confirmed by the discovery of 11 polished stone balls in the right-hand side cells of Loughcrew L. This important deposit however is not opposed to another category of object since it was accompanied by two bone pins (Conwell 1866: 368-9).

The principle of an axial opposition of the funerary objects is thus showed in several Irish and Welsh monuments. However, it is important to stress that this rule is not adopted by all the passage tombs of the region. Indeed, other sites whose architecture presents opposed side spaces (chamber, cells, recesses), do not show any selection of the grave furniture according to the axis of the monument. For example, in the cruciform tomb of Fourknocks was found a particularly rich collection of varied objects (balls, pins, pendants, beads) distributed without any distinction in the three cells of the tomb (Hartnett 1957).

The same absence of classification characterizes the distribution of the objects in tombs F, G and K in Carrowkeel necropolis. In these monuments, spared by plunderings and intrusions before

R.A.S. Macalister's excavations, the pins, beads, pendants and balls are present in every recess and cell (Macalister *et al.* 1912).

In the double transepted tomb of West Kennet (Severn-Cotswold group), the opposed cells on each side of the axis of the tomb contained the same assembly of objects (flints, pendants, pins, beads) with no different proportions (Piggott 1962).

Thus the axial opposition is an important principle in the layout of the tomb furniture but it does not constitute an absolute and exclusive rule around the Irish Sea. It is besides interesting to note, in continental monuments, a similar classification of the funerary objects in each half of the tomb. In tomb B of the Vierville cairn (Normandy), the archaeologists discovered an axial partition of the funerary deposits with two groups of bodies opposed on each side of the circular chamber. In the group placed on the north of the chamber, the furniture included sharp flakes and boar tusk blades. In the southern group, on the other hand, the individuals were deposited with beads and teeth ornaments. This opposition of objects could, according to the authors, result from a sexual partition of the funerary space (Dron *et al.* 2003: 283).

In the wooden sepulchral gallery of Vignely (Paris Basin), the eleven buried individuals (including seven children) were laid out in two groups distributed on both side of the chamber and separated by a linear space set across the center of the chamber in its axis. Three different criteria show a deliberate opposition between both groups. First, the nature of the furniture is radically different from one group to the other: arrowheads and assagai points were discovered with the southern group, whereas in the northern group the bodies were deposited with varied ornaments. Secondly, the position of the bodies differs: stretched out in the south, in the fœtal position in the north. Lastly, the sex of two adults could be identified: an adult male in the southern group and an adult female in the northern group. Here also, the nature of the objects and the information obtained on the sex of the individuals weigh in favour of a sexual partition of the funerary space (Chambon 2003: 122-37).

Can the sex or the age of the individuals deposited in Irish monuments be identified and can they inform us about the recruitment of the dead according to the spatial division of architecture?

7.3.2.2. Classifications and oppositions of human remains

In Ireland, the dominant funerary practice is cremation. This processing, which characterizes the Irish Neolithic, leaves very little information to the anthropologists and it is difficult to undertake a study on a large scale (Cooney 1992; Davidsson 2003). In Britain, however, inhumation is the most current practice and some studies have been undertaken on the age and sex of the individuals deposited in the passage tombs of the region.

In a study on the evolution of the funerary architectures of the south-west of Britain, I. Kinnes pointed out the link between the partition of the tomb space and the classification of the human remains. In the transeptal tomb of West Kennet, the archaeologist highlights the axial opposition separating women, in majority in the right-hand side cells, children, in majority in the left side cells, and adult males, concentrated in the final cell (Kinnes 1981).

In a paper on the funerary rituals in the Severn-Cotswold tombs, J. Thomas points out the different manipulation of the bodies according to the architectural types of the chambers (Thomas

1988: 552-3). Whereas bones are removed on several occasions in tombs with simple chamber, the bodies are placed directly in their final location in transeptal cairns. In this last type of tomb, the partition of the funerary space seems to match the social divisions according to sex and age. The archaeologist quotes the examples of Lanhill, Lugbury, Eyford, Belas Knap, Ty Isaf, Pipton, Rodmarton, West Kennet, Notgrove, Nympsfield, Ffostyl South, Burn Ground and Parc Breos Cwm. In these tombs, the side cells and compartments are used to classify the deceased by opposing old people, adults and young people, women and men. In certain cases, the processing of the body constitutes an additional criteria of distinction, as the cremation which sometimes was exclusively reserved for children.

Just as the layout of funerary furniture does not systematically present a logic of opposition, the classification of the human remains according to their age or sex is not systematically applied. In Fourknocks passage tomb, for example, each side cell contained adults and children in equivalent proportion and each category revealed the use of cremation and inhumation (Hartnett 1957; Cooney 1992). The age and sex criteria does not determine any differentiation between the various spaces that the architecture of the tomb opposes.

Does there exist other selective criteria which escaped the analysis of the archaeologists (families, social groups)? Perhaps new methods of analysis would make it possible to identify these other criteria, as shows the research undertaken by S. Piera on the teeth of the populations buried in the neighbouring cairns of La Hogue and La Hoguette (Normandy). The analysis revealed on the one hand the family ties between the individuals in each monument and, on the other hand, the biological differences between the populations of both cairns, thus showing the existence of the social link as funerary criteria of selection (Piera 2003).

The passage tombs of the British Isles are characterized by a frequent partition of the chamber space. Even if much information is missing on this subject, it is difficult to imagine other reasons that the classification of the dead at the origin of these complex compartmentations. The material effort put to built them and the symbolic significance of these demarcations were certainly not used to distribute the deceased without distinctions there. As pointed out by J. Leclerc about the compartmented gallery graves of France, « [...] the relations that have similar spaces between them and apparently redundant that individualizes the topography (for example several parallel burial cells) [...] have to be analyzed as relations of opposition, i.e. of substitutability inside the same paradigm [...] When one buries a deceased in a particular cell which appears, to us, similar to the others, this choice between substitutable elements of the paradigm is not an ethnic choice but a current choice, made at one given time by real men between several concrete possibilities. It is for us to seek the criteria of this choice, and to interpret them[1] » (Leclerc 1997: 403-4).

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[1] « [...] les relations qu'entretiennent les espaces semblables entre eux et apparemment redondants qu'individualise la topographie (par exemple plusieurs cellules d'inhumations parallèles) [...] s'analysent comme des relations d'opposition, c'est-à-dire de substituabilité à l'intérieur d'un même paradigme. [...] Quand on inhume un défunt dans une cellule particulière qui nous paraît, à nous, semblable aux autres, ce choix entre des éléments substituables du paradigme n'est pas un choix ethnique mais un choix actuel, fait à un moment donné par des hommes réels entre plusieurs possibilités concrètes. Il nous appartient de chercher les critères de ce choix, et de les interpréter. »

Whatever the selected criteria of recruitment from one funerary site to another, they may reproduce the criteria of social distinction working in the concerned groups (Fleming 1972: 65-6; Goldstein 1981: 57). An analysis of the domestic space in the Neolithic houses in Orkney gives an interesting point of view. Built in a dry stone wall, these houses are generally of circular form from the outside and in most cases consist of a single rectangular room. The room is accessed through a central passage opening across the wall and presents on each side structures interpreted as beds. On the back wall is a closed structure with several compartmented shelves, generally interpreted as a storage space. As in the contemporary tombs, the right side of the building is often emphasized to the detriment of the left side (larger bed, passage directed rightwards).

Thus, the plan of Orkney houses reflects perfectly the architecture of the cruciform tombs built in the archipelago and around the Irish Sea (Richards 1996: 194; Richards 2005: 130-1; Bradley *et al.* 2000: 60-3). For M. Parker Pearson and C. Richards, the plan of the houses and the emphasis on the right side can be interpreted as a sexual partition of the domestic space, a hypothesis based on several ethnographic examples in which the left side of domestic space is the most private sphere, reserved for women, whereas the right part is reserved for men and public activities (Parker Pearson & Richards 1994: 45).

This short analysis of the funerary deposits cannot claim exhaustiveness. Its aim is not to define the different way to lay out the human remains and their furniture but simply to show that the principle of axial opposition also appears in the funerary practices. The axis of the tomb determines a partition of the monument (tomb, tumulus and art) in two distinct sets. In many monuments, the axis forms the principal line of delimitation between different groups of deposited objects or different categories of the deceased.

The architectural symbolism and the choices of funerary deposits are certainly much more complex. They cannot be reduced to the only axial division which should be regarded as *one* element among other organisational principles that are still to be discovered. Thus we do not claim of course to have solved the question of the funerary rites, which deserves a comprehensive study, but simply to highlight the links between the spatial organization of the parietal art, the architecture and the layout of the grave deposits, the latter being certainly determined by the former.

7.4. Conclusion : the spatial symbolism of passage tombs

The study of the arragement of the various elements of a passage tomb reveals that they are all organized according to the same set of ruling principles. The distribution of the carved signs, the architecture of the tumulus, the architecture of the tomb and the layout of the funerary deposits work together and obey the same organisational plan of which we could identify some fundamental elements.

What is then a « passage tomb »? The layout of all its material and graphic components shows that it is primarily a symbolic architecture in which a visible part works with an invisible part (figure 7.21). The monument consists initially of a circular tumulus composed of several concentric envelopes. These envelopes are materialized by distinct materials (various sediments, cairn) and are delimited by circular enclosures (kerb[1], facings, ditches). The tumulus is thus a complex system formed of concentric hemispherical spaces differentiated between them.

The tomb is a linear construction allowing to create a pathway from outside to the center of the tumulus. The architecture of the walls, sills and roof is arranged so as to reproduce, in this visible space, the invisible concentric tumulary spaces which it crosses. Thus, the forecourt, the passage, the antechamber and the chamber form successive lock rooms, delimited between them by structures arranged on the ground (sillstones), in the roof (low lintels) and in the walls (narrowing, jambstones). Each one of these lock rooms corresponds to a sphere of the tumulus.

The side cells form the final spaces of the tomb. They are separate spaces in which one hardly penetrates and which stand apart from the space of circulation. They form a kind of intermediary between the accessible space formed by the tomb and the inaccessible space formed by the tumulus. The cells laid out on the right-hand side are often emphasized (dimensions, quality of the material, occurence of a basin stone), revealing an axial opposition depreciating the left side of the architecture.

Parietal art, through its mysterious signs, distinguishes and emphasizes on the various elements of the tumulus and the tomb. The kerb, the thresholds and the final cells have thier own repertoire and certain signs reproduce the orientation of the axis of the tomb or the systems of opposition organized around this virtual line. Moreover, the symbolic value of threshold identified for certain signs enable to interpret certain structural elements (backstone, basin stone, kerbstone) as symbolic doorways.

The funerary deposits, human remains and objects, are mainly distributed in the cells of the tombs where certain logics of opposition appear, reproducing there again a system of representation occurring in the layout of the building materials of the tomb.

The spatial symbolism of the passage tombs continues certainly beyond its architecture and a study on the location of the tombs in the landscape would certainly make it possible to find certain interesting principles. A simple observation of the position of the sites on topographic maps reveals for example that certain groups of tombs are frequently in position of limit between two catchment

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[1] It is important to regard the kerb mainly as an enclosure and not as a simple wall retaining the tumulus material (see Eriksen 2004). Its function is more symbolic than technical.

basins (maps 1.3, 1.4 and 1.6).

The spatial symbolism of the tumulus and tomb is based on visible structures as well as on invisible structures. This opposition between visible and invisible take us back to the parietal art of the tombs where the same phenomenon was observed: whereas the main part of the carvings is on the observable faces of the large structural stones, other signs were discovered on surfaces obscured or hidden in the tumulus. The analysis of this « hidden art » forms the last point of our study.

Chapter 8
Hidden art and the question of carved stones reuse

This ultimate chapter forms the last point of our study devoted to the relations between the iconography and the architectural space. Given the complexity of the funerary architectures, the choice of the signs position is multiple and the combinations between the various architectural spaces and the various elements of the repertoire are very numerous. However, before the deployment of these combinations stands a fundamental choice: the visibility or the invisibility of the carved signs.

Hidden art refers to every carving located on surfaces which are completely dissimulated or partially obscured in the architecture of the tombs. The expression was created by C O'Kelly when the excavations in Newgrange and Knowth revealed the wide scale of the phenomenon (C O'Kelly 1973: 363-4). Indeed, hidden art concerns 112 stones distributed in 23 monuments, i.e. 18% of the whole corpus. It is then an essential characteristic of Irish passage tomb art.

The purpose of this chapter is to draw up the inventory of currently known hidden carvings, to study their iconography and to ask the question of their origin. The latter point is the most problematic and if the answers are multiple, the starting question is itself complex: is hidden art premeditated or fortuitous? Does this anomaly result from a secondary use of the stones, during which the carvings are condemned or is it a planned symbolic act? We will see, at the end of the study, which answers can be proposed.

The first point of the chapter proposes an ordered inventory of the stones presenting hidden carvings. The second point consists of a statistical analysis of the hidden in order to draw up the « iconographic profile » of hidden art. The third point is a study on the way in which Irish hidden art was perceived and interpreted by the archaeologists. Lastly, the chapter ends on a study of some reused stones whose secondary position « produced » hidden art.

8.1. Inventory of hidden carvings

There are 112 stones presenting hidden carvings, distributed amongst 23 monuments. The present inventory classifies the phenomenon in different categories defined according to the degree of obstruction of the carved surfaces. Two main categories are distinguished: partially hidden carvings (obscured by adjacent stones or covered by a partial picking, located on the top face of orthostats) and completely hidden carvings (on the buried base or on the back face of vertical stones, on the upper face of capstones or on stones buried in the tumulus).

8.1.1. The partially hidden carvings

8.1.1.1. Carvings obscured by an adjacent stone
In this first category are the stones whose one or more carved faces are obscured by an adjacent stone placed against the carvings or close enough to prevent their good visibility (figure 8.1). This phenomenon is the result of the combination of two orthostats, two capstones or an orthostat and a capstone.

In Loughcrew tomb T, the lower face of the roofstone of the final cell is covered with various signs. Some of these signs, placed at the edge of the stone, are partially covered by the corbels on which it rests. In the left cell, the corbel Co2/C2 also presents a motif on its lower face, partially obscured in the same manner.
The two remaining stones of the monument of Rathkenny present the same phenomenon. Some of the circles carved on the lower face of the capstone are hidden by the pillar on which it rests.

In the tomb of Newgrange, the roofstone of the eastern cell is carved on its whole lower surface. As in Loughcrew T, the signs located at the edge of the stone are obscured by the corbels on which it rests. Several corbels of the tomb show the same characteristic. In the western cell, corbel Co1/C2 presents on its lower face a circular motif (spiral, concentric arcs or circles) partly hidden by orthostat C2 on which the stone has been placed. In the axial cell, the corbel Co1/C7 is carved with several signs on its upper face. The corbels above it rest on certain parts of its surface some of whose signs are then partly obscured. In the cover of the passage, the corbel Co3/L5-6, carved on its lower face, revealed all its carvings only when it was completely cleared during the excavation. Lastly, in the passage, orthostat L13 is carved on both of its side faces, obscured by orthostats L12 and L14.
In Newgrange tomb K, orthostats 2 and 10 are also carved exclusively on a side face obscured by adjacent orthostats.

In the eastern tomb of Knowth, orthostats 2 and 92 are carved with various signs on one of their side faces. Those are partially or completely obscured by adjacent stones (orthostats 3 and 91). Deeper in the tomb, the entrance of the northern cell is marked by two jambstones standing against the side walls of the recess. Consequently, certain carvings on orthostats 52 and 56 are hidden by these pillars.

The cover of the tomb passage is made with slabs laid perpendicularly to the axis of the passage. These stones rest on the summit of the passage walls so that some of them, carved on one of the ends of their lower face, have some signs obscured by the head of the orthostats. The phenomenon occurs on six capstones: RS10, RS30, RS32, RS41, RS49 and RS50. Several corbels also present carvings obscured by the stones on which they rest or by the upper stones to which they serve as a support: Co40i, Co52iii, CoD4, CoE6, Co5D-6th, CoF10.

The western tomb of Knowth presents three cases of obscured carved surfaces. Orthostat 16 is carved with a spiral on its top left angle which is half hidden by orthostat 15. Orthostat 17 presents carvings on a side face, obscured by orthostat 16. On the lower face of capstone 21, a broad line is carved and continues on the upper, hidden face of the stone. Lastly, the chevrons carved on the lower face of capstones 3 and 10 are obscured by the orthostats which support them.

In Knowth tomb 2, orthostat 30 is carved with boxed simple chevrons on one of its obscured side faces.

8.1.1.2. Carvings on the top face of orthostats

Some carvings, placed on the top face of orthostats, are partially hidden or may have been hidden when the cover of the tomb was in place. Indeed, in certain cases (LcS.C2; LcU.C9), the cover disappeared and it is difficult to know if this one rested directly on the top face of these orthostats, in which case the carvings would be at least partly hidden, or if the ceiling rested on corbels arranged behind these orthostats. In Barnenez, for example, the orthostats of certain tombs do not have a supporting role since the corbeled roof rests on dry stone walls built behind the orthostats (Giot 1987: 77). However, in certain Irish tombs where the cover has been preserved, engravings made on the top face of orthostats are partially hidden (LcL.C1, LcT.C15).

8.1.1.3. Carvings erased by secondary picking

On certain walls of Boyne valley passage tomb, some motifs have been completely or partially covered by a picking which has simply altered or completely obliterated the carved desings. It is not a question here of geometrical carvings superimposed on late carvings (ex: KhW.Or41) but of a real processing of the surface of the stone intended to cover certain signs.

Thus, on orthostate 55 of Knowth eastern tomb, a pick-dressing has been applied to a small surface in the center of the stone so as to erase a part of the existing decoration. In Newgrange, the pick-dressing made on orthostat L19 has consciously spared the signs of the higher part but covered those on the lower part. The carvings visible on the base of orthostat R3 underwent the same processing. Orthostat C12 in the southern tomb of Dowth presents various geometrical signs amongst which some are covered by a light pick-dressing. However, on the higher part of the stone, this pick-dressing is more aggressive and erased a part of a circular sign.

8.1.2. The completely hidden carvings

The carvings classified in this second category occur on completely hidden surfaces which were discovered only at the occasion of archaeological excavation.

8.1.2.1. Carvings on the buried base of orthostats and kerbstones

The orthostats in passage tombs are standing stones kept in vertical position by a socket and wedging stones. In certain monuments, like the tombs of the Boyne necropolises, the kerbstones are fixed into the ground according to the same process. The base of these orthostats and kerbstones is then buried in the socket where it is invisible. It is however on this surface, intended to be completely hidden, that certain carvings were carried out (figure 8.2).

Kerbstone 6 in Newgrange is a particularly interesting example. The carvings all occur at the base of the boulder, concentrated below a virtual horizontal line corresponding to the ground level. Kerbstone 18 presents a motif carved directly on its lower face, facing the bottom of the socket. Lastly, another kerbstone, K88, has a part of its carving on its hidden base.

Orthostat L20 in the tomb of Newgrange is also a conclusive example. The only carvings of the stone are on its base and are distributed exactly below the ground level in the passage. Orthostats L19 and R3 have various carved signs of which a part is hidden in the foundation socket.

In Knowth western tomb, three orthostats present some carvings extending down to their base which then condemns a part of them to darkness (Or18, Or74 and Or81). In the satellite tomb 14, orthostat 8 also presents carvings on the whole of its surface, including that inserted in the socket. Lastly, in tomb 18, only the base of orthostat 11 was preserved when the stone was extracted from the monument. This fragment, invisible when the stone and the monument were complete, is carved on all its surfaces, including its lower side facing the bottom of the socket.

8.1.2.2. Carvings on the back face of orthostats and kerbstones

The orthostats form the walls of the tomb and most of them expose only one of their faces, their back face being turned towards the mass of the cairn. Many kerbstones have the same characteristic: the outer face is visible whereas the inner face is hidden in the tumulus which ends at the top of these slabs. Thus, the back face of these orthostats and kerbstones is completely occulted once the monument is completed. However, the occurrence of carvings on this condemned surface is very frequent since the phenomenon appears on 45 stones (figures 8.3 and 8.4).

The passage tomb of Knockmany has carved signs on the back face of three chamber orthostats (C5, C6 and C7). In Loughcrew, a circular sign was recorded on the back face of kerbstone 29 in tomb T During the excavations of the tomb of Fourknocks, a lozenge was discovered on the back face of orthostat C5.

In Newgrange, the phenomenon occurs on nine kerbstones of the central tumulus: K4, K7, K11, K13, K18, K56, K58, K66, K91 (Shee Twohig 2000: 97). In the tomb K of the necropolis, some carvings has been discovered on the back faces of kerbstone 4 and orthostats 2a and 5. In tomb L, a kerbstone is carved on both faces (stone B).

In large the tumulus of Dowth, two kerbstones carry carvings on their back face: K50 and K51.

In the central tumulus of Knowth, the phenomenon occurs on ten kerbstones (K1, K13, K14, K15, K16, K46, K61, K68, K71 and K94), three orthostats of the eastern tomb (Or2, Or36,

Or43) and one orthostat of the western tomb (Or17). The occurrence of carvings on the reverse face of standing stones has also been noticed in the satellite tombs 14 (kerbstone 5 and orthostat 8), 15 (orthostat 14), 16 (orthostats 2, 4, 7, 9, 13 and corbel 12) and 18 (orthostat 11).

Lastly, a picked circular sign was photographed behind orthostat R2 in Tara passage tomb at the time of the excavations of the tomb.

8.1.2.3. Carvings on the upper face of capstones

In passage tombs, the capstones are placed horizontally above two opposite walls so as to form the ceiling of the passage, chamber or cell. The only visible part of these slabs is their lower face, facing down towards the interior of the tomb. The upper face and the possible carvings occurring there are covered by the tumulus to which uses it as support and are thus completely condemned (figure 8.5).

The passage tomb of Carnanmore presents carvings on the upper face of two capstones. Whereas the monument was known of for a long time, the motifs were revealed only at the occasion of the excavations above the ceiling of the chamber.

In Newgrange, the excavations carried out above the cover of the passage also allowed the discovery of many hidden carvings, distributed on seven capstones (RS1, RB, Co3/R4-5, RS3, RS7, X, Y). The same work in Knowth produced identical results above the passage of the eastern (RS2, RS7, RS18, RS20, RS21, RS26, RS28, RS30, RS34, RS37) and western tombs (RS5).

The excavations carried out in the cairn of Knockroe cleared a displaced slab, resting partly on the right wall of the western tomb of which it constituted most certainly the capstone formerly. The slab presents on its upper face a series of arc signs whose layout and hidden location is reminiscent of the Carnanmore roofstone.

Lastly, on the single capstone preserved above the chamber of Barclodiad y Gawres, undefined carvings were discovered on the upper face.

8.1.2.4. Carved stones buried inside the tumulus

This last category concerns the carved stones or fragments of carved stones buried in the mass of the tumulus and discovered during excavations in this invisible part of the architecture. Here, not only the carvings but the whole stone are hidden (figure 8.6).

The carved stone of Bryn Celli Ddu illustrates this rare form of hidden art. Discovered behind the chamber, in the mass of the tumulus, this stone carved on all its faces with meandering lines partly covered a pit burial.

In the central tumulus of Knowth, two stone fragments were discovered just behind the passage orthostates of both tombs: stone A was found behind orthostat 13 in the western tomb and stone B was buried behind orthostat 95 in the eastern tomb.

In Baltinglass, the carved boulder H was found in the mass of the cairn. The stone certainly forms part of a late kerb, standing in open air in a former phase of the site, and its hiding in the mass of the cairn would result from an extension of the monument during a recent phase.

This inventory draws up a provisional assessment on currently known hidden carvings but it is certainly far from the real total. Hidden art has been generally discovered at the occasion of excavations on the sites, and a majority of carved monuments has not been completely explored yet. How many hidden carvings still occur behind orthostats, over capstones or in the tumulary mass of these tombs? It is difficult to estimate it. However, this inventory shows that the phenomenon is not marginal and that it is an essential characteristic of the parietal art around the Irish Sea.

8.2. Iconographic and statistical study of hidden art

In 1973, C O'Kelly notices that hidden art is characterized in Newgrange by circular and radiate signs, proportionally in greatest number than in the « official » carvings of the tomb (O'Kelly 1973: 364). Does the invisible art of all monuments present a particular repertoire, differentiating it from the visible art? What is the « iconographic profile » of this particular form of Irish parietal art?

Taking into account the significant number of hidden surfaces presenting carvings, it is possible to carry out a series of statistical studies and thus to study the proportions of each family of signs according to various criteria. Using statistical graphs, similar to those that E. Shee Twohig made for the art of Newgrange (Shee Twohig 2000), we propose here to analyze three aspects of the iconography of the hidden art around the Irish Sea: the proportion of the families of signs on hidden surfaces, the proportion of the visible and hidden elements in each signs family and the relations between the families of signs and the types of hidden surfaces.

8.2.1. Proportion of the families of signs on the hidden surfaces

The sign which appears the most on hidden surfaces is the chevron (42 stones), which largely dominates the other signs of the repertoire (figure 8.8). In second position come the circles and the spirals (30 and 29 stones), then the cups (25 stones), the arcs, the meandering lines (21 stones each) and the lozenges (18 stones). The radiate signs (2 and 4 stones), the triangles (8 flagstones) and scalariform signs (4 stones) form a distinct group, appearing in little number on hidden surfaces. Are these proportions different on the visible carved surfaces?

8.2.2. Proportion of visible and hidden elements in each signs family

As C O'Kelly supposed it, the iconographic repertoire of the hidden art is distinguished from the repertoire of the visible surfaces. However, contrary to the conclusions of the archaeologist, the hidden art is not characterized by a particular use of the cups and circles since only 14% and 10,5% of these signs appear on invisible surfaces. On the other hand, 25% of the radiate semicircular signs and 25% of the chevrons occur on invisible surfaces, followed by the spirals (19%), triangles (16,5%), rhombuses (15%) and meandering lines (11%). The signs which, proportionally, « avoid » the most hidden surfaces are the scalariform signs (7%), the arcs (6,5%) and the radiate circular signs (5%).

Thus, hidden art presents a particular repertoire, dominated quantitatively and proportionally by the family of the chevrons and that of the spirals. The meandering sign, the circle, the cup, the

triangle, the rectangle and the radiate semicircular sign are also frequent signs on hidden surfaces. On the other hand, the arcs, the scalariform signs and the radiate circular signs are much rarer there.

It is interesting to note the opposition between the radiate semicircular sign and the radiate circular sign, presenting respectively the greatest (25%) and the lowest (5%) proportion of elements on hidden surfaces. Another opposition between these two signs has already been noted in their spatial distribution in the monuments: whereas the first prefer intern right spaces and the kerb, the second is mainly placed in the left half of the chamber while being rare on the kerb (see section 6.2.2).

In spite of their graphic proximity, which often made them join together within a same typological category in former studies, these two families are two distinct sets, presenting well differentiated graphic alternatives and a spatial distribution.

8.2.3. The relations between the signs families and the types of hidden surfaces

Few particular tendencies appear from the study of the relationship between the signs families and the types of hidden surfaces (figure 8.9). All the signs are mainly distributed on the back face of orthostats and kerbstones, or secondarily on the top face of capstones. The other forms of hidden surfaces (obscured faces, buried bases, tumulary mass) are not very occupied proportionally by the signs. One can however note the strong occurence of the chevrons, circles and spirals on the obscured faces as well as an important presence of the spiral on the buried base of orthostats and kerbstones.

The purpose of this very short statistical analysis is to draw up the iconographic profile of hidden art. It shows indeed that a particular repertoire characterizes these invisible carvings. However, an important limit must be taken into account. Indeed, this analysis is based on all the carvings observed in invisible context, but can one regard hidden art as only one coherent phenomenon? Wouldn't one have to distinguish several types of hidden arts, with different origins, history and significances? If certain occulted signs take part of a symbolic plan, opposing a visible art to an invisible art, other hidden carvings can result from another intention according to which the iconography does not have a dominating role any more (condemnation, reuse). Before tackling these problems of the origins of hidden art, let us see how the phenomenon was perceived and interpreted by the archaeologists, from the end of 18th century until today.

8.3. Mentions and interpretations of hidden art

Hidden carvings are one of the characteristics of Irish parietal art which has not escaped the attention of the many observers and archaeologists interested in the passage tombs of the region. We propose here an epistemological study on the perception of the phenomenon of hidden art in the scientific writings from the end of the 18th century until today. Four different approaches are distinguished amongst the observers of the phenomenon: some mention it without seeking to interpret its origin or its signification, others explain hidden art by various pragmatic reasons, the third see in these obscured carvings a premeditated symbolism whereas the fourth interpret them as the result of stone reuse.

8.3.1. The neutral observations of hidden art

Various archaeologists, by observing the hidden carvings of the Irish tombs, simply notice that certain stones were carved before being integrated into the architecture. This simple acknowledgement thus avoids any interpretation on the chronology (ancient or contemporary stones of the construction of the monuments?) and signification (accidental, practical, symbolic?) of the phenomenon.

The fact that certain carvings were obscured did not escape the first observers. Indeed, as soon as the middle of the 19th century, several authors noted the phenomenon and suggested that these stones were decorated before being inserted into the structure of the monuments. W.F. Wakeman remarks that certain carvings of the eastern cell of Newgrange are inaccessible to carvings tools and thus were decorated before their installation (Wakeman 1848: 27). In the same monument, E.A. Conwell is led to the same conclusions by observing certain carvings of the western cell (Conwell 1872: 97-8). Visiting the tomb of Le Mané Lud in Morbihan, S. Ferguson seeks without success carvings obscured in the assembly of architectural stones, a phenomenon observed by the archaeologist in Gavrinis and Newgrange (Ferguson 1863: 403). W.G. Wood-Martin regards hidden art as one of the characteristics of the parietal art of Newgrange and adds that certain stones were then carved before being put in position in the monument (Wood-Martin 1895: 285).

The discovery of the carved stele in Bryn Celli Ddu, buried in the center of the tumulus, did not surprise W.J. Hemp for whom hidden art is a widespread characteristic of passage tomb art. The archaeologist quotes by way of illustration the monuments of Newgrange, La Hougue Bie and Gavrinis (Hemp 1930: 197).

More recently, in an article devoted to the techniques of Irish passage tomb art, E. Shee Twohig also specifies that the carvings were made as well before than after the positionning of the structural elements (Shee Twohig 1973: 169-70; 1981: 117).

8.3.2. The pragmatic interpretation of hidden art

Certain archaeologists tried to analyze the phenomenon in order to explain it. Why some carvings were carried out on the stones before these were installed into the architecture? For some

people, the phenomenon is explained simply with practical reasons, related to the requirements and constraints of construction of the tombs.

According to T.G.E. Powell and G.E. Daniel, orthostat L19 in Newgrange, of which certain carvings are buried in the socket, was initially planned for a position reversed to that it presents today. This anomaly would be explained by « a building error, or a change in design, [which] brought about the necessity to obliterate the first decoration[1] » (Powell & Daniel 1956: 47).

For C. O'Kelly, the hidden art of the site K in Newgrange was executed by « labourers » or « apprentice hands », whereas the visible, « official » faces, would have been reserved to « professionals » (O'Kelly, Lynch & O'Kelly 1978: 325). According to this hypothesis, the hidden faces were used as ephemeral drafts, opposed to the final works, carried out on the visible faces. M. Herity gives the same interpretation of the hidden carvings: « the expression of this art is not limited only to professionals : amateurs too, are trying their hand on surfaces of kerb, orthostat and roof which are later discarded »(Herity 1974: 186).

However, some archaeologists, as D.D.A. Simpson and J.E. Thawley (1972: 88), disagree with these practical explanations of hidden art. Both are indeed dubitative vis-a-vis the reasoning of M. O'Kelly (1964) for whom hidden carvings, conveniently executed before the installation of the stone, are placed accidentally in an invisible position after a change in the construction plan. According to other archaeologists, the condemnation of these carved faces results above all from a symbolic process.

8.3.3. <u>The symbolic interpretation of hidden art</u>

In 1973, C O'Kelly gives a good description of the various manifestations of hidden art in the Boyne valley. According to her, the phenomenon is explained by the symbolic value attached to the execution of the carvings, higher than their visibility for the Neolithic people. Then, these carved signs would not have been made in order to be observable once the architecture completed, but more for themselves, the act of carving being a symbolic act sufficient in itself: « the fact that the ornament could not be seen was of little importance to the builders once it had been applied to the stones » (O'Kelly 1973: 263).

The interpretation of M. O'Sullivan figures in the same perspective. About certain carvings discovered in Knowth, he stresses that they « would not have been visible in the normal course of events, which suggests that their function was primarily symbolic » (O'Sullivan, 1986: 72). For the archaeologist, these carved stones dates from the construction of the monument, since the motifs occuring on the hidden faces of the stones are identical to those present on their visible parts. Thus, hidden carvings and visible carvings form part of the same stylistic period, termed « depictive art »,

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[1] « It is possible that this stone was originally intended to be erected the other way up, but that a building error, or a change in design, brought about the necessity to obliterate the first decoration. In this case the zig-zags at the present foot would have formed an upper chevron band, and not part of a border pattern for the present arrangement as it might now appear ».

dating from the erection of the monument (idem: 75). Indeed, during this first period, « factors such as visibility and the aesthetic quality of the art were secondary to the imperative of representing the individual motif » (O'Sullivan 1996: 84).

In another paper, M. O'Sullivan develops this idea according to which the insertion of already carved stones constitutes a symbolic act: « It emerges then that at least some of the stones used in the building of passage tombs were themselves charged with symbolism. This is in keeping with the Breton tradition of re-incorporating menhirs in the fabric of megalithic tombs, a practice which cannot be totally emptied of symbolism. It may also explain, at least in part, the irish practice of including previously decorated stones in the building of the tombs » (O'Sullivan, 1997: 30).

According to S.A. Johnston, Irish rock art can be a tradition former to passage tomb art and not posterior to it as generally considered. In this reversed chronological model, the archaeologist proposes to see hidden carvings in passage tombs, made primarily of circles and cups according to her, as a symbolic replica of rock art, enabling to mark symbolically the continuity between these two different traditions of parietal art (Johnston 1993: 275-6).

8.3.4. Hidden art interpreted as the result of stone reuse

Contrary to the scientific writings about Breton tombs (Cassen 2000c), the British literature clearly suggests a link between hidden art and stone reuse as soon as the beginning of the identification of the phenomenon. In 1773, T. Pownall writes one of the first examination of the tumulus of Newgrange. The author thinks that orthostat C4 « is a mere fragment […] [which] is of a more ancient date than the building wherein it is found » (Pownall 1773: 259). This assumption, however, is not based on the occurrence of hidden carvings but on one of the motif of the stone, interpreted by T. Pownall as a phenician inscription.

In fact, the question is really put by W.R. Wilde in 1847: « The following very remarkable circumstance struck us while investigating this ancient structure of New Grange, some years ago. We found that those carvings not only covered portions of the stones exposed to view, but extended over those surfaces which, until some recent dilapidation, were completely concealed from view, and where a tool could not have reached them ; and the inference is plain, that these stones were carved prior to their being placed in their present position ; perhaps were used for some anterior purpose. If so, how much it adds to their antiquity ! » (Wilde 1847: 178). The suggestion of W.R. Wilde then gave place to a debate, disputed from the end of the 19th century right up until today.

J. Ferguson, in his book on megalithism, rejects the theory of stone reuse and sides with pragmatic party to explain hidden art : « To account for this [i.e. hidden art], some have asserted that they belonged to an older building before having been used in this ; but it hardly seems necessary to adopt so violent an hypothesis. It may have been that the stones were carved before being used, and at a time when no plans or drawings existed, may have been found unsuited in size or form for the places for which they were first intended, and consequently either turned round or used elsewhere. Or it may be that as the crypt must have been built and tolerably complete before the mound was raised over it, the king may have had it ornamented externally while in that state. Labour was of little value

in those days, and it is dangerous to attempt an account for the caprices of kings in such a state of society as must then have existed. The identity of the style and characters of the ornaments both on the hidden and the visible parts of these stones excludes the idea that they were the work of different epochs. A removal from an older building implies a desecration and neglect which must have been the work of time ; and, having regard to their identity, it is improbable that a time considerable enough would have elapsed to admit of a building being so desecrated and neglected as that its stones should be carried away and used elsewhere » (Ferguson 1872: 205).

For G. Coffey, the reuse thesis formulated by W.R. Wilde is also contestable. During a visit in Newgrange, the archaeologist notes the occurence of triple spiral carved on the lower face of a corbel placed over orthostat C10. The carvings, of which he makes a sketch, were indeed visible at this time thanks to the accidental leaning of orthostat C10 and the restoration of the tomb later condemned again the carved face to darkness, such as it was it in the original state of the monument (Coffey 1912: 32). The hidden art phenomenon, according to G. Coffey, is explained not by the reuse of late carved stones but by various practical reasons: it is easier to carve a stone before its insertion than after (place, light, etc). Moreover, the author brings two arguments against the theory of stone reuse. Firstly, other hidden carvings are known in Loughcrew and Gavrinis (in the latter, the recent excavations revealed that they are actually reused steles). Secondly, the hidden carvings in Newgrange do not show any deterioration nor weathering, proving so the temporal proximity between the execution of the carvings and their burying into the architecture (Coffey 1892: 47-8; 1912: 39-41).

Despite the arguments of these two scientific authorities, the thesis of stone reuse as the origin of hidden carvings does not disappear from the debates. H. Breuil, in his founding paper of 1934, suggests the hypothesis on several occasions. Thus, about the incised motifs on the walls of Newgrange and Dowth, he writes: « They are earlier than the other decorations on these monuments and appear to be previous to their erection » (Breuil 1934: 292). Further, in a description of the carved stones of Loughcrew tomb T, the author notices that « some of these designs are certainly previous to the erection of the galleries [...] ; indeed they are partly masked in the construction of the monument » (idem: 293). In the same way, according to H. Breuil, many carvings in Newgrange were « certainly executed previous to the erection of that gigantic gallery of corbelled chambers, since the immense slab forming the vault of one of these shows a surface covered with decorations, hidden on every side in the building of the walls » (idem: 293). Lastly, describing the spiral on an orthostat, the author notices that it is « partly hidden by the fitting of the stones forming the wall, showing that the designs are earlier than the present building » (idem: 300).

The same reasoning is followed by V.G. Childe and A. Graham during the discovery, near Airlie in Scotland, of a stone carved with meandering signs in the cover of a medieval souterrain. The geological nature of the stone is different from the other stones of the monument and its carvings are partially hidden by adjacent lintels and orthostats: for the archaeologists, the carved stone has undoubtedly been reused from a older monument (Childe & Graham 1943: 38; see also Sherrif 1995: 15).

By examining the carved stone of the Bronze Age cist of Packburn, in Scotland, A.S. Henshall notices that the signs are highly weathered. The archaeologist formulates the hypothesis of

a reuse: the slab could be an ancient carved outcrop, quarried and used as a structural element by the cist builders (Henshall 1966: 211).

In the same way, D.D.A. Simpson and J.E. Thawley estimate that, in Bronze Age cists, too large stones or stones bearing truncated carved surfaces are in secondary position. They had a different function, in a different monument, during a previous period (Simpson & Thawley 1972: 86, 92).

These last three examples are outside the debates on hidden passage tomb art. However, they show that, in other monumental contexts, hidden art is interpreted as the result of stone reuse and that the theory is more easily accepted than in our field of study.

Indeed, whereas the excavations in Newgrange reveal many other hidden carvings, the archaeologists in charge of the site disagree with the hypothesis formulated formerly by W.R. Wilde. For C. O'Kelly, the absence of weathering on hidden carvings argue against their anteriority: « At Newgrange there are many instances of expert decoration buried out of sight, often for the simple reason of expendiency. To explain the seeming inconsistency of such a course of action, many authors have suggested that these examples were removed from earlier tombs and were re-used simply as structural members without regard to their ornament. The Newgrange example at any rate, demonstrate by the freshness of the ornament that they were not previously exposed to weathering and hence were not in use in another tomb » (O'Kelly 1969: 28-9).

For C. Renfrew, who signs the introduction to the monograph of the site, the hypothesis of an accidental or prosaic reuse is also excluded and he explains hidden art only by a premeditated symbolism (Renfrew in O'Kelly 1982: 8).

However, the O'Kellys admit, without further comment, that the corbel CoR7/R8 in Dowth North, whose carvings location does not seem very natural, is certainly not in its original position (O'Kelly & O'Kelly 1983: 169). Indeed, if hidden carvings are not all explained by stone reuse, the latter explanation could fit certain cases. This is the question put forward by J. Raftery, at the time of the seventh UISPP congress, about certain carvings recently found in Newgrange: « In view of the large number of new stones discovered bearing « hidden » designs would prof. O'Kelly care to make any statement about the old theory that the stones had been carved for other structures and re-utilised by incorporation in the mound of Newgrange ». The answer of the archaeologist of the site is unfortunately not recorded in the proceedings of the conference (O'Kelly 1970: 536).

An important turning point in the debate is caused by the discovery, in Knowth large tumulus, of several stones whose hidden carvings are truncated. The hypothesis of carved stones reused in passage tombs is thus supported by various examples that M. O'Sullivan enumerates in his PhD dissertation devoted to Irish passage tomb art. Thus, about capstone 20 of the eastern tomb, the archaeologist points out that « the shape of the stone, the manner in which the ornament is distributed on it, and the fact that such fine ornament occurs on the hidden surface leads on to speculate wether the stone might originally have functioned elsewhere as an orthostat before being incorporated in the roof of this tomb ». The same hypothesis is suggested for corbel Co10F: « the ornament ends abruptly at the fractural edge of the stone on the left, indicating that this may be a re-used fragment of a larger decorated stone which was taken from elsewhere. » (O'Sullivan 1988: 34,

41).

Supported by the recent discoveries in Knowth and those, more explicit, in Gavrinis in Brittany (L'Helgouac'H 1983; Le Roux 1984), the hypothesis of reused carved stones appears acceptable for several archaeologists. J. Thomas suggested the idea for the Boyne valley passage tombs: « In the case of the Boyne tombs this decoration may have already been applied to the stones before they were incorporated into the fabric of the tomb. This may represent a conscious deployment of geometric symbols which had already gained significance through their earlier use elsewhere, possibly at menhirs. Consequently, these stones would have been drawn into the symbolic universe of the tomb in the attempt to fix predetermined meanings in space. Later artwork, more often plastic and sinuous in form, may sometimes overlay these designs » (Thomas 1990: 174-5).

For F. Lynch, the carved signs present on the upper face of Carnanmore capstone are certainly former to the construction of the tomb (Lynch 1992: 166).

For J. McMann, the symbolic significance of the carved stones is strong enough so that their meaning endure through their reuse, so the hidden carvings keep their symbolism: « The careful selection and use of stone in megalithic monuments, as well as the re-use of inscribed stones in new structures, prooves the power and significance of this material. […] At Loughcrew, stone might have been seen as an interactive participant in ceremonies associated with the cairns, and the act of carving as a record or instrument of this interaction. The repetition of such acts could result in the apparently haphazard arrangement of motifs characteristic of Loughcrew. The present-day location of some designs in inaccessible places (on the backs of stones at Newgrange, for example, and on the roofstone of Cell 2 in Cairn T at Loughcrew) does not contradict this idea. Stones were often inscribed before they were used in construction (e.g. O'Kelly 1982) as well as moved and reincorporated in new settings ; ritually inscribed stones would have had a particular significance for relocation » (McMann 1994: 538-40).

The hypothesis of stone reuse is also well plausible for A.B. Powell which considers it as one possible explanation of the hidden art of Newgrange. The invisible carvings « may derive from earlier tombs builts on the site, which were decorated according to different symbolic principles, so that the symbols on their stones had different meanings. If such stones were incorporated in Newgrange the structure of their art might have been considered inappropriate, contradictory or meaningless in terms of those symbols' current meanings » (Powell 1994: 94).

If the reuse of carved stones is not considered as a convincing explanation for the hidden carvings of Newgrange (Dronfield 1996b: 55), the discoveries in Knowth and the work of G. Eogan on the parietal art of the site definitely ensure the validity of the theory. During the Corunna conference, devoted to megalithic art, the archaeologist distinguishes three forms of hidden art in Knowth: completely hidden carvings, partially hidden carvings and reused stones (Eogan 1997a: 221). The main paper on the question, entitled *Knowth before Knowth*, is published in 1998 in the journal *Antiquity*. G. Eogan reveals the presence of carved stones located in incoherent positions, in the cover and walls of the tombs. According to the author, the reused of carved stones concerns as well the tombs of Knowth as that of Newgrange: « it may be suggested that the latter were all recycled, having previously been used in an earlier tomb. [...] in re-use the stones were dispersed between the

two tombs of Knowth 1 and also of Newgrange » (Eogan 1998: 166). Thus, the archaeologist offers a revision of the history of the site and of its evolution. The reused stones, according to him, would come from another tomb, older and destroyed for ritual (iconoclasm) or simply pragmatic reasons, in order to obtain building materials for the present monument, of larger size.

The phenomenon of stone reuse is henceforth not put into question any more when E. Shee Twohig writes a essay on the chronology of the visible and invisible carvings in the Boyne valley passage tombs. For the archaeologist, the oldest carvings of Newgrange and Knowth certainly come from a former monument, destroyed at the time of the construction of the large tumuli in the center of the necropolises (Shee Twohig, 2000).

Since the end of the 1990's, the reuse of carved stones became an essential question in the study of the parietal art around the Irish Sea (Bradley *et al.* 2000: 56; Shee Twohig 2001: 122; Cody 2002: 95-6; Jones 2004: 205; Darvill *et al.* 2005: 290, 294; Eogan 2008: 10).

8.4. Examples of hidden carvings resulting from stone reuse

Even if reuse is not the only explanation to hidden art, the phenomenon seems sufficiently important to deserve a separate study. The aim of the present examination is not to draw up the complete corpus of hidden carvings resulting from reuse but to develop a methodology enabling to identify carved stones in a secondary position and to find their original position. The first stage, the identification, consists in observing, on a carved stone, various characteristics arguing in favour of a reuse. The second stage, the reconstruction, aims at finding the original position of a reused stone in the absolute space (according to the ground) and, if possible, in the space of the tomb where it had its initial function.

Similar problems, based on the analysis of the layout of the carved signs, have been recently developed in a PhD thesis on Irish rock art. Some carved outcrops were quarried and reused as standing stones. B. O'Connor shows that the analysis of the carved compositions makes it possible to reconstitute the orientation of these slabs in the slope of the original outcrop (O'Connor 2006).

Our reasoning is close to B. O'Connor's work by the use of the « grammatical rules » of the carved composition as a way to find the original position of reused stones. However, other elements are also taken into account in our methodology of which we will describe first the theoretical aspects before focusing on its application on a selection of concrete cases.

8.4.1. <u>From identification to reconstruction: theoretical method</u>

8.4.1.1. The criteria of identification of reused stones

Several criteria observable on carved stones enable to identify them as reused elements:
- The occurrence of partly or completely hidden carvings: hidden art is an anomaly which can result from a symbolic plan but also from a real will to hide the carvings intended for a former construction and inadequate in the secondary monument. In Brittany, the presence of hidden carvings is an almost infallible evidence of reuse. The situation is more complex in Ireland but this causality cannot be rejected.
- The occurrence of secondary fractures: the reuse of carved stones is often marked by accidental or deliberate deterioration of the stone. A slab presenting a clear fracture, of anthropic origin, can be interpreted as a reused stone, especially if the fracture truncates a carved face.
- The inversion of « grammatical rules »: in chapters 4, 5 and 6 of this dissertaion various significant recurrences in the combinations and orientation of the signs have been presented. These recurrences then constitute a series of « rules » structuring the arrangement of the carved signs in the three-dimensional space of the tomb. The non observation or the inversion of these rules is one of the main characteristics of reused stones.

Weathering has not been considered as a significant criterion. In the case of parietal carvings inside passage tombs, the picked signs are not exposed to open air (except on kerbstones) and are thus sheltered from natural deteriorations. Moreover, the time passed between the first and the second use of a stone can be of short duration, during which no deterioration can mark the carvings.

Besides, the selected criteria presented above do not necessarily occur on a reused stone and can appear on a slab in primary position. They enable to indicate a probable reuse but they do not guarantee it. The identification of a reused stone is not demonstrable with certainty but is based on several degrees of probability: The latter depends on the number of criteria gathered on the same stone and on the variable importance of these criteria. A stone presenting only one obscured sign has less probability to be a reused element than an orthostat fractured at an end and whose carvings, partially destroyed, are laid out in reversed position and placed on the back face. However, there are certainly reused stones showing all the characteristics of a stone in primary position. All things considered, the identification of reused stone is not an exact science and any hypothesis is prone to discussion.

8.4.1.2. Method of reconstruction of reused stones

The reconstruction of reused stones is carried out according to different information which, combined, argues in favour of an original position on the ground and, in certain cases, in favour of a particular location inside an architecture. This information is as follows:

- The shape of the stone: any stone naturally presents a broader or thicker end and a thiner end so that its placement in vertical position can be done intuitively in only one way, placing the centre of gravity of the object in low position so as to give him the best stability. It is thus easy to imagine the initial position of some orthostats reused as capstones. Sometimes, some orthostats, which seem to be set « upside down », are actually reused stones: their initial position can be reconstructed simply with a inversion of their present position.

- The location of the carvings: all the stones used as structural elements inside passage tombs present, according to their arrangement, a visible face and less visible and invisible parts. In the case of vertical stones (orthostats or kerbstones), the carvings are generally concentrated on the top central part of the emerged part (i.e. outside the socket) of the main face. The end of a reused stone, where the carvings are concentrated, will then be intuitively placed upwards in a reconstruction. Thus, the shape of the stone and the location of the carvings often provide sufficient information to imagine a probable reconstruction.

- The layout of the carvings: certain reused stones present combinations of signs also occurring on stones in primary position where they are arranged according to precise rules, examined in chapters 4, 5 and 6. These rules, which define and impose a particular position and orientation to the signs combinations, bring determining help to the reconstruction of the initial position of reused stones. In certain cases, these rules enable to find the function and the architectural location of a carved stone removed from its initial context. This is the reasoning followed by G. Eogan when he interprets the stone A in Fourknocks as a passage lintel according to the nature of the carvings (combination of chevrons and lozenges) and their position on the stone (side face) which are similar to the other carved lintels of the tomb (Eogan 1986: 183).

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8.4.2. <u>From identification to reconstruction : case studies</u>

The present examination focuses on a selection of carved stones which are very probably reused and whose suggested reconstruction is also probable. The analysis is limited exclusively to stones whose initial position was vertical and fixed into the ground (orthostats and kerbstones) and no reconstitution is proposed for other configurations (roofstones or corbels).

8.4.2.1. Identification and reconstruction after the form of the stone and the location of the carvings

The first series of stones examined is in Newgrange and Bryn Celli Ddu (figure 8.10). Orthostat R3 in Newgrange presents in its current configuration a set of geometrical signs on the lower part of its main face, carvings which extend down to the socket (see figure 8.2). These original carvings were then covered partly by a pick-dressing extending on the top central part of the stone and executed undoubtedly after the insertion of the stone in its present position. These two phases of carvings as well as the occurrence of carved signs in hidden position argue in favour of a reuse. The reconstitution of the original position of the stone is easily done by turning this one over according to an angle of 180°: the broadest part is thus in the imagined socket and the carvings, henceforth well visible, appear on the upper half of the vertical stone.

Orthostat L20 in Newgrange forms a similar case. All its carvings are currently located in the socket where the stone seems to present a fracture (see figure 8.2). An inversion of the orientation of 180° gives the stone and its carvings a more « natural » configuration.

The capstone Co3/L5-6 was discovered in the roof of the passage. The carved face, facing downwards, was in great part obscured by the supporting orthostats. Moreover, a part of the carved surface is flaken off, which can be considered as an additional evidence of reuse. The shape of the stone as well as the location of the carvings argue for an initially vertical position, according to the longitudinal axis of the stone, thus revealing the group of signs carved on the upper half of the main face. Amongst the carvings occurs a spiral inserted in a circle: the stone may have initially been a kerbstone since this particuliar composition occurs only on kerbstones (Ng.K18b, Ng.K51, Kr.K31: see section 4.4.1.1).

Orthostate L19 in Newgrange presents carvings of chevrons and spirals on the whole of its surface except one of its ends. In its current position, some carvings are in the socket whereas the top of the stone does not present any carved sign (see figure 8.2). A secondary pick-dressing covers a part of the carvings and provides additional evidence in favour of the reuse hypothesis. A probable reconstruction consists in turning over the flagstone according to an angle of 180°: the uncarved part, which is also the broadest, is thus inserted in the socket, and all the carvings are visible.

Orthostate L13 is carved on both side faces where only a part of the carving is visible and could be recorded by C. O'Kelly. The two carved faces are probably the broadest of the stone and the slab would be thus currently placed perpendicularly to the axis of the passage, an unusual position in the Boyne passage tombs. Thus, the position of the stone and the obstruction of its carvings argue in favour of a reuse. In this case, the initial position of the stone on the ground was certainly the same one, but its configuration in the architecture certainly allowed to see both carved faces, as on orthostats delimiting adjacent cells as inside the tombs I, L, U and V in Loughcrew.

Finally the carved stone of Bryn Celli Ddu, discovered under the tumulus, was probably in the

beginning a standing stone forming part of the first phase of the site (stone circle). Its reconstruction in vertical position, such as it is currently presented to the public on the site, renders visible the carvings in meandering lines on its upper half.

In Knowth, the original position of several stones reused in the cover of the tombs can be found according to the shape of the stone and the location of the carvings (figure 8.11). Capstone RS30, in the eastern tomb, presents carvings on one of the ends of its upper face. The hidden position of the artwork as well as its bad state of conservation indicate a secondary position. Imagined in standing position, the carved part placed upwards, this long stone appears in a more coherent arrangement. The form of the stone and the location of the signs are similar to capstone RS32 in the same monument (see below).

Capstone RS20 presents an original set of nine spirals distributed also on the upper face. The stone presents, on one of its ends, some fractures which damaged the carvings. This deterioration provides additional evidence to the reuse hypothesis. Reconstituted in vertical position, standing on the ground, the stone presents a coherence according to its form and according to the location of the carvings, distributed on the higher half of the main face.

Still in the eastern tomb, capstone RS2 is carved with a large spiral facing upwards in the tumulary material. From the form of the stone and the position of its decoration, it may have been a former orthostat whose carved sign was intended to appear on the top right part of the main face.

The western tomb also presents a similar case of reuse. The capstone RS10 has been discovered broken into several fragments and its restoration reveals that some carved parts are missing. Moreover, the carvings occurring on the stone were partially obscured by the summit of the supporting orthostats in the passage. According to the initial shape of the stone, and the absence of carvings on its broadest end, it is probable that its first function was that of a orthostat or, at least, a standing stone.

8.4.2.2. Identification and reconstruction after the position and orientation of the signs

The following cases of reuse are identified through the same process as the preceding examples but the reconstitution of their original position is made easier by the analysis of their signs whose position and orientation obey precise rules on carved stones in primary position. The comparison between these stones in primary position and the reused stones thus enable to find the initial configuration of the latter.

Capstone RS28 in Knowth East is marked with a single motif made of a series of boxed simple chevrons, each segment of the Vs being separated by a space (figure 8.12). This composition, very rare in the Irish corpus, is also reproduced on the side face of orthostat C4 in the chamber of Newgrange. On the latter, probably in primary position, the motif is set vertically and the chevrons open upwards. On capstone RS28 of Knowth East, certainly reused since the carvings appear on the upper (hidden) face, the motif is placed in the axis of the stone. According to the Newgrange orthostat, it is possible to offer a reconstitution of the initial position of the Knowth capstone. This one was certainly in a vertical position and if one places the sign in the upper part of the stone, it presents the same orientation as the Newgrange sign. On both stones, the figure has been executed

on a long and narrow face.

In chapter 6, we showed that this combination of simple chevrons with central space is located in position of architectural limit in the tombs of Newgrange, Knowth and Gavrinis (figure 6.28). In the last two monuments, the figure presents an opposite orientation to that in Newgrange: the chevrons open downwards and not upwards (KhW.Or50; Gi.L10). This alternative can also be offered for the reconstitution of Knowth capstone RS28 on which we focus here. The sign would then be located close to the ground, in a configuration identical to that of orthostat 50 in Knowth West.

The roofstone of Carnanmore is carved on its upper face, hidden by the cairn, an anomaly that F. Lynch interprets as resulting from a reuse (Lynch 1992: 166). At the time of our visit on the site, in September 2006, we could observe on the western side face of the stone several marks of percussion probably resulting from an anthropic cutting up. This one would explain the difference between the western edge of the flagstone, sharp, of a rectangular section and of broken aspect, and the eastern edge, rounded and regular. The hidden position of the signs and the presence of a fractured edge then argue in favour of a reuse.

A reconstitution of the original position can be suggested by comparison with orthostat C5 in Loughcrew F (figure 8.13). This orthostat presents on its upper part a series of three horseshoe arcs, opening downwards and arranged on a vertical line. If one considers the Carnanmore stone as a former vertical stone of which the lower has been cut away, the same arcs combination would then appear in a similar configuration: on the upper part of the main face, slightly to the right of the center (Robin 2007).

This hypothesis of reuse, and then of reconstitution, may be invalidated by the occurence of a similar composition carved on a roofslab of the western tomb in Knockroe (figure 6.11). An combination of aligned arcs appear indeed on the upper face of this slab according to the same configuration than that in Carnanmore roof and we have seen, in chapter 6, that the arrangement of this particular motif is linked with the axis of the tomb. The carvings of Carnanmore, like those of Knockroe, would thus have a purely symbolic function then justifying their hidden position. However, this purely symbolic function is not necessarily in contradiction with a reuse. The Carnanmore stone may have initially functioned in vertical position, as an orthostat or as a stele, and then, in the second time, would have been inserted in the cover of the tomb and arranged so as to adjust its decoration according to the axis of the monument. The example of Carnanmore illustrates well the complexity of the phenomenon of hidden art and stone reuse, both being certainly not explained by a single reason.

The excavations in Knowth revealed a large series of stones with hidden carvings that G. Eogan interprets as reused stones (Eogan 1998). Among these stones, many present the same iconography made up of chevrons only or chevrons with spirals. These signs combinations also appear on vertical stones in primary position which, by comparison, help to reconstitute the original position of the reused stones.

The first series of these reused stones is characterized by a decoration in parallel zigzags

(figure 8.14). On capstone RS41 in Knowth East, this simple decoration is obscured by the summit of the passage orthostats and damaged by several fractures. The chevrons extend all over half of the slab which can be interpreted as an former vertical stone. In this reconstitution, the part not carved is at the base whereas the decoration occupies the upper half of the stone, according to a configuration identical to orthostat L3 in Le Petit Mont 3 (Morbihan).

In the western tomb of Knowth, the capstones RS3 and RS5 present the same configuration with, as additional evidence of reuse, a fractured end. The parallel chevrons occur on one end of these stones and, in a reconstitution as vertical stones, the carvings figure on the upper part of the carved face. As in the preceding example, the reconstitution of these two stones the places horizontally the lines of chevrons, such as they are laid out on stones in primary position.

Orthostate 74 of the western tomb is carved with about fifteen parallel chevrons which occur on the greatest part of its main face and which, in the current configuration of the stone, extend down to the pit socket (see figure 8.2). Besides these hidden carvings, several fractures damaging the carvings argue in favour of a reuse. Most probably, the stone was reversed upside down at the time of its secondary insertion in Knowth tomb. In its primary position, this vertical stone may indeed have stood on its broadest blank end, presenting the chevrons on its central and upper face.

Lastly, the fragment called stone B, discovered behind orthostat 95 in the eastern tomb, presents two parallel chevrons near a fractured end. The stone is certainly the fragment of a late vertical stone whose original position would present the carvings on its upper part.

To this series can be added the loose stone carved with parallel chevrons, discovered out of context, reused in a modern construction near the tomb of Dowth (O'Kelly 1967: 46). The slab presents a broader end, with no carvings, and a narrower end where four parallel chevrons were incised. Its original position as a vertical stone is very probable and its link with the stones described above is striking.

A second series of reused stones in Knowth is characterized by a combination of chevrons and spirals (figure 8.15). This significant composition, analysed in section 4.4.3.8 (figure 4.40), consists of a series of parallel horizontal chevrons surmounted by one or several spirals. It appears on the upper part of orthostat C16 in Barclodiad y Gawres, a stone in primary position which thus enables to find the original position of the stones reused in Knowth.

Orthostat 17 in the western tomb has the distinctive feature of being carved on two adjacent faces set in right angle. One of these faces is currently turned towards the tumulus whereas the second is obscured by the adjacent orthostat. The stone, probably reused, should have been initially set in the same way in the ground but its former arrangement in its original tomb should let visible its carvings whose combination is identical to the upper decoration of the Welsh orthostat.

The process undergone by orthostats 18 and 81 in Knowth West is characteristic of the reuse. These stones present a broad end without carvings and a narrower end where the signs are laid out. In their current configuration, the orthostats appear obviously in a « reversed » position, standing unconveniently on their narrowest end, condemning a part of their decoration in their socket (see figure 8.2). By turning over these stones by 180°, their position seems more stable and their decoration, henceforth completely visible, presents this recurring combination of parallel chevrons surmounted by one or more spirals.

This specific composition also appears on capstone RS32 in the eastern tomb. This long stone was most probably in vertical position, as indicated by one of its end without carvings (part buried in socket) and its decoration composed of horizontal chevrons surmounted by a spiral.

The recurring presence of this combination of spirals and chevrons on reused stones indicates that orthostat 16 in the western tomb is also in a secondary position. Indeed, the stone carries the same composition of which a part is deliberately hidden by the adjacent orthostat (see figure 8.1).

Orthostat 17 in the western tomb is characterized by two elements which distinguish it from the series. Firstly, as pointed out above, the carved chevrons extend on two adjacent faces, set at right angles. Secondly, a third sign is added to the panel: a lozenge occurs indeed on the lower part of the left face. The composition is then complex, formed of a spiral placed on the top right, a lozenge placed on the bottom left, both signs being separated by a series of horizontal parallel chevrons. This particular combination, examined in section 6.5.1.1, is also visible on the upper part of two orthostats in primary position: orthostat C16 in Barclodiad y Gawres and orthostat 15 in Knowth 17 (figure 8.16). These two stones not only have the same graphic construction, but also present the same location in the architecture, marking the junction between the passage and the chamber of a cruciform tomb.

Can these two orthostats in primary position inform us about the original arrangement of orthostat 17 of Knowth West? The latter, indeed, is carved on two faces and its composition would be completely visible in a passage tomb only if it was placed at the angle of two perpendicular walls. Thus, the nature of the carved composition and its deployment in three dimensions argue in favour of a location at the passage and chamber junction inside a cruciform tomb.

Most of the satellite tombs of Knowth necropolis were destroyed during the Neolithic and only the sockets of the missing orthostats make it possible to find their plan. Among these destroyed tombs, three present a cruciform plan: tombs 6, 9 and 18. In these tombs, the dimensions of the last socket of the right wall of the passage are compatible with the dimensions of the base of Knowth West orthostat 17. Thus, it is possible that this orthostat was originally standing in one of these three monuments, in a configuration identical to those of orthostat 15 in tomb 17 and orthostat C16 in Barclodiad y Gawres.

A last interesting case study can be offered to end this study on the identification and reconstruction of reused carved stones (figure 8.17). The loose stone 23 was found out of context during the excavations in Knowth and its function as well as its original location are unknown. The only information we have are the carvings which appear on the main face and which consist of four parallel lines of simple circles. Carved lozenges also occur on one of the side face of the stone but they will not be helpful in the reconstitution.

The carvings of loose stone 23 are distributed on half of the surface of the main face and on the adjacent side face. Thus, only a vertical position, allowing to see all the carvings, is possible: the stone would have originally rest on its longest side which do not present carvings. In this position, the stone is thus broader than high and has more the appearence of a kerbstone than of an orthostat. Alignments of simple circles appear as well on orthostats as on kerbstones (see section 4.3.1.2). In

Knowth, two kerbstones present one (K5) or two parallel horizontal lines (K42) of simple circles, carved on the upper part of their main face, along their top edge. In the reconstitution suggested above, the loose stone 23 presents these signs according to the same arrangement. The stone could then have formerly been a kerbstone in one of the satellite tombs whose small size would explain the small dimensions of loose stone 23.

8.5. Conclusion : hidden art*s*

The corpus of the hidden carvings form a significant part of the parietal art around the Irish Sea at a quantitative level as well as at a geographical level since the phenomenon extends from the northern point of Ireland (Carnanmore) to its southern point (Knockroe), and from the east of the country (Knockmany) to Wales (Bryn Celli Ddu). Although these invisible signs are largely concentrated in the Boyne valley passage tombs, their occurence in several distant sites shows that hidden art is a characteristic feature of all Irish passage tombs.

The dissimulated location of this art and the specificity of its repertoire thus differentiate it from the visible parietal art, in majority in the tombs. In spite of this apparent homogeneity, its interpretation is delicate and, at the end of this study, it seems obvious that not only one but several explanations are valid. Thus, the pragmatic thesis is most probable to explain the obscured position of certain carvings, like, for example, those occurring on the lower face of the roofstones of the cells in Newgrange (RScellE) and Loughcrew T (RScell2). On these surfaces, only some signs are obscured and this is certainly explained by a execution of the carvings before the installation of the stone, a process which appears here necessary in view of the position in ceiling of the carvings.

The thesis of premeditated symbolism is also very probable in other cases. We can quote as examples the radiate semicircular signs in Newgrange and Knowth which all occur in a hidden position and are directed towards the North in spite of the various orientations of the surfaces on which they appear (figure 8.18). The location of these particular signs exclusively, which are on hidden surfaces and arranged according to a specific orientation, thus testifies to a premeditated precise plan. In Tara passage tomb, the circular sign carved behind orthostat R2 presents an obvious link with cist II built just below the carving. In the kerb of Newgrange, stones K4 and K51 are set at two opposite sides of the monument and present the same carved composition (see figure 5.12): this one is in a visible position on the first kerbstone (main face) whereas it occurs on the back face of the second. There is thus certainly a symbolic opposition in the location of both kerbstones, reproduced in the location of the motif.

In other cases, evidence of destruction of the stones and the inversion of the decorations can result only from the reuse of stones coming from former monuments now destroyed. We have examined a selection of stones which, by the anomaly of their current position and by the coherence of their reconstituted initial position, show sufficiently the validity of this hypothesis. Many other aspects of the phenomenon remain however to be explored: why the majority of the carved stones reused in Knowth have chevrons and spirals? Have they been removed from the same monument

or from several monuments in which they were selected for this particular decoration? What are the historical and sociological reasons at the origin of the practice of reuse in Ireland? In the Boyne valley, should the destruction of the small tombs in favour of the large central tumulus be interpreted as the sign of a fusion of several lineages (Gallay 2006: 62) or as the sign of a hierarchization of the society (domination of a group over the others)? Or should it be regarded as a simple evolution during which the new generations appropriate the monuments of their forefathers by reorganizing them according to their own criteria (Gouletquer 2003a, 2003b)? The question of stone reuse is complex and must be examined within the framework of a particular analysis on the architectural evolutions ; but this is another subject.

Thus, at the origin of the many hidden carvings inventoried in this chapter are certainly several quite different intentions and several histories. It is then certainly more appropriate to speak not about only one hidden art, regarded as a single phenomenon, but about several hidden arts resulting from pragmatic as well as symbolic concerns. Consequently, the analysis of hidden carvings can proceed only on a « case by case » basis, because the total phenomenon can not be explained by a universal and monolithic interpretation.

Conclusion

The main conclusion of our research is that the parietal art of the passage tombs located around the Irish Sea is spatially structured in space. This structure is developed : firstly in absolute space, since the signs form recurring complex combinations ; secondly in the stone space, since signs and the combinations of signs are laid out there according to recurring models ; and finally in the visible and invisible space of the architecture since their distribution echoes the spatial organization of the structures of the monument.

Several conclusions can be drawn from these results:
- Parietal art is executed according to a predetermined plan and not in a random way ;
- Its function is mainly symbolic and not only decorative ;
- Parietal art, architecture and funerary deposits form a coherent unit, a complex system of representation in space. The passage tombs are then not simple places for funerary deposits protected by a tumulus but symbolic architectures whose each component has a precise function. By representing the world of the dead, or the entrance to this world, these tombs make it possible to explain to the livings the functioning of this inevitable passage. They are, according to the expression of A. Levy, « machines to make believe[1] » (Levy 2003).
- The rules of spatial organization make it possible to reconstitute the original position of carved stones whose carvings, in secondary position, are « disorganized ».

However, several limits must be specified. Firstly our analysis deals with the geometrical figures of Irish parietal art: if these signs are in large majority in the studied region, a part of the carvings, in particular those which mark the last artistic phase in Knowth (ribbon art and diffuse picking), is excluded from our corpus.

Secondly, if this work proves the organized character of parietal art, it does not prove that the totality of this art is structured in space. Indeed, a great part of the carved compositions escapes from our analysis. These many gaps are explained by the great complexity of certain graphical structures which remain to be deciphered, by their single (non recurring) character or by the absence of organization in certain carved panels. It is indeed very probable that a part of the parietal art was executed in a spontaneous way, randomly, without predetermined plan on the scale of the monument.

Our contribution to the study of the Irish funerary carvings is then relative since the latter remain impenetrable. Our aim was above all to identify their grammar (spatial organization) without seeking to understand their meaning (interpretation). Our work concentrated more on the

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[1] « Des machines à faire croire ».

development of a method of analysis of ancient graphic compositions, leaving aside a rigorous analysis of the results obtained.

This methodology, which one can attach to the structuralist tradition (Frankfurt 1999; Sauvet 2004), was applied to the parietal art of the passage tombs located around the Irish Sea but its application to other objects of study would certainly be profitable. This is why this PhD dissertation does not constitute an end but the beginning of a research on the organization of the signs in the Neolithic representations. Indeed, it would be interesting to apply the questions and the method developed here to different contemporary fields of Western Europe: Iberia (passage tombs and steles), Brittany (passage tombs, gallery graves, steles), Paris basin (gallery graves and hypogea), Germany (gallery graves), Sardinia (hypogea).

Our method would be also interesting in an analysis of the decorations of ceramic vessels deposited in funerary context (Castellic, Grooved Ware) whose link with parietal art has been demonstrated above (see section 5.2.1).

Lastly, other questions, tackled in our work, deserve a proper study: the layout of the symbolic structures in the Neolithic tombs of Western Europe; the spatial organization of the tombs within the necropolises; the location of the tombs into the landscape and the evolution of the funerary architectures in the British Isles; the analysis of the Irish mythological sources mentioning megalithic tombs.

Bibliography

Abbreviations

AC	Archaeologia Cambrensis	JRSAI	Journal Royal Society of Antiquaries of Ireland
AI	Archaeology Ireland		
BSPF	Bulletin de la Société Préhistorique Française	OJA	Oxford Journal of Archaeology
		PPS	Proceedings of the Prehistoric Society
BSPM	Bulletin de la Société Polymathique du Morbihan	PPSEA	Proceedings of the Prehistoric Society of East Anglia
CA	Current Anthropology	PRIA	Proceedings of the Royal Irish Academy
CJA	Cambridge Journal of Archaeology	PSAS	Proceedings of the Society of Antiquaries of Scotland
GAJ	Glasgow Archaeological Journal		
JCHAS	Journal of the Cork Historical and Archaeological Society	RAO	Revue Archéologique de l'Ouest
		TRIA	Transactions of the Royal Irish Academy
JIA	Journal of Irish Archaeology	UJA	Ulster Journal of Archaeology
JIbA	Journal of Iberian Archaeology	WA	World Archaeology

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